Materials Management Plan (MMP) Form – School Street, Radcliffe

This form should be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person.

A Qualified Person may comment on draft versions of this MMP, but will not complete the Declaration until all the relevant documents, demonstrating lines of evidence have been provided for each site.

The person / organisation who will pay the Declaration fee should confirm that they have read and understand the Terms and Conditions relating to the payment of the Declaration fee to CL:AIRE. These can be found on the CL:AIRE website.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address -	Chris Eccles, Contaminated Land Assessment - Remediation Strategy & Verification - Ground Engineering – Soils Reuse & Waste Assessments Mob: 07784 669127, chris@ecclesassociates.co.uk

X **I confirm I have read and understood the Terms & Conditions.**

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the Definition of Waste: Development Industry Code of Practice (DoW CoP) (1, 2, 3 or 4):

☐ 1. Reuse on the Site of Origin

☐ 2. Direct Transfer of clean naturally occurring soil / mineral materials

☐ 3. Cluster Project

X 4. Combination of any of the above: Reuse on site to create development platform and material import to make up shortfall.

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc:

(NB: A Declaration is required for reuse on the Site of Origin and for any 2 site arrangement i.e. there is no facility for a combination Declaration)

2. Organisation and name of person preparing this MMP	Andrew Bain, Geo-environmental Team Leader, EDGE Consulting Engineers, 3rd Floor, Conavon Court, 12 Blackfriars Street, Manchester, M3 5BQ, United Kingdom T +44 (0) 161 834 1938 | M +44 (0) 798 407 7358, abain@edgece.com

Document Control

Date issued	11/11/2024 Initial version, no donor sites identified.
Revision date	30/03/2026
Summary of revision 1	Addition of topsoil donor site
Summary of revision 2	

Insert additional lines to the table above for any subsequent revisions.

Note - revisions to the MMP do not trigger an additional Declaration by a Qualified Person, unless an additional site is added to the project.

Revisions to the MMP must be recorded and summarised in the Document Control box above.

Site Details

3. Site / Project name(s)	School Street, Radcliffe
Reuse / receiving site name :	School Street, Radcliffe
Donor site name (if Direct Transfer)	Peel Hall Lane, Warrington

Landowners

4a. Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused	Hive Homes (Greater Manchester) LLP, 2a Derwent Avenue, Chorlton, Manchester, M21 7QP. Ed Milner, Ed.milner@hive-homes.co.uk, 07811 440342
4b. Name of Landowner(s) (full address and contact details) – where excavated materials are arising from	Site of origin: Hive Homes (Greater Manchester) LLP, 2a Derwent Avenue, Chorlton, Manchester, M21 7QP. Ed Milner, Ed.milner@hive-homes.co.uk, 07811 440342 Donor Site: Vistry Group, Merseyside and Cheshire West, 301 Birchwood park, Birchwood, Warrington WA3 6XF. Rob Bennett, Rob.Bennett@vistry.co.uk 07877 882782.

Summary and objectives

5a. Provide a brief description of the planned project and how excavated materials are to be reused.	The site is located to the north of School Street in Radcliffe at approximate NGR 378045E 4071484N and comprises an area of approximately 2.4 hectares. The site was previously occupied by a school with the buildings demolished in 2011 and remediated in 2021 which included a programme of drilling and grouting

	undertaken in order to stabilise any mine workings present (none encountered). The site is currently surfaced with a layer of 6F2 type crush material with three stockpiles (Ref BB1 to BB3) of processed soils and arisings (6F2 and subsoil) located in the middle of the site. A topographic survey taken in 2021 by JLP Surveying is presented as Drawing No S21-1045 Rev B in Appendix A. The site is proposed to be redeveloped with 90 residential properties with gardens and access roads as shown on MCK Associates Limited Drawing No 21-039 PL01 Rev Z presented in Appendix A. Although the site has been remediated, further works are required to provide a suitable development platform and a cut / fill exercise is proposed to be undertaken at the site as shown on EDGE Drawing No's 211196-EDGE-XX-XX-DR-C-1001 Rev P03 and 211196-EDGE-XX-XX-DR-C-1002 Rev P03 presented in Appendix A. The model allows for the re-use of the existing stockpiles within the capping layer and as subsoil. The stockpile volumes are as follows: • BB1 comprises 876 m^3 of site won 6F2; • BB2 comprises 495 m^3 of site won clay; • BB3 comprises 838 m^3 of site won subsoil. Including the stockpiles volumes above, the total cut volume is 2,724 m^3. Following re-use of drainage arisings, the earthworks results in a shortfall of 2,118 m^3

	which will be required to be imported. 1,032 m^3 of clean topsoil is proposed to be imported to the site for use in gardens and landscaped areas from Peel Hall Lane, Warrington.

General Plans and Schematics

6. **Attach** a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.	Plan Document Reference(s): Proposed site layout plan is presented as MCK Associates Limited Drawing No 21-039 PL01 Rev Z in Appendix A. The cut / fill drawings are presented as EDGE Drawing No's 211196-EDGE-XX-XX-DR-C-1001 Rev P03 and 211196-EDGE-XX-XX-DR-C-1002 Rev P03 presented in Appendix A. Proposed donor site location plan and topsoil plan are presented in Appendix K.

7. **Attach** a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it. For all other projects a schematic is required.	Description & Schematic Document Reference: Refer to drawings referenced in Section 6 above. Imported topsoil to be placed in gardens and landscaped areas as shown on MCK Associates Ltd Drawing No 21-039 presented in Appendix A. Topsoil to be sourced from donor site as per E3P Drawing No 15-740-007 presented in Appendix K.

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are to be reused	Ritchie Mellor, DXI Remediation, Landgate Business Centre, Wigan Road, Ashton in Makerfield, WN4 0BX, ritchie@dxiltd.co.uk 07789 870987
8b. Main earthworks contractor(s) (full address and contact details) - Where excavated materials are arising from	Site of Origin: Ritchie Mellor, DXI Remediation, Landgate Business Centre, Wigan Road, Ashton in Makerfield, WN4 0BX, ritchie@dxiltd.co.uk 07789 870987 Donor Site (Peel Hall Lane): Stephen Newton, PAS NW Ltd, Pocket Nook Lane, Lowton, Warrington, WA3 1AB, ste.newton@pasnw.co.uk 01925 649 400

9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a fixed STF /	N/A as no treatment to be undertaken.

Cluster Project	

10. Where wastes and materials are to be transported between sites, provide details of the transport contractor(s) (full address, contact details and waste carriers registration details (if applicable))	Craig Davies, Transport Co-ordinator, 07701 304620 Wigan Tippers Hire LTD, 50 Richmond Hill, Pemberton, United Kingdom, WN5 8AA. Waste Carrier Registration No: CBDU569481. craig@wigantippers.co.uk

11. Provide Local Authority contact details (full address and named contacts) where excavated materials are to be reused	Rebecca Jones, Environmental Protection Officer, Bury Council, 3 Knowsley Place, Duke Street, Bury, BL0 0EJ, Rebecca.jones@bury.gov.uk 0161 253 6392

12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	Stephen Bostock Environment Agency, Richard Fairclough House, Knutsford Road, Warrington, WA4 1HT. GMMCWasteEnquiries@environment-agency.gov.uk , 03708 506 506
For all Cluster Projects: 12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of DoW CoP)	EA references: N/A

If the EA has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is, at what point it ceases to be waste; as complete a picture as possible has to be created.

The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.	Document Reference(s): Human Health Assessment Criteria in remediation strategy as presented in Appendix B. The engineering specification will be the Specification for Highways Works.

Where contamination is suspected or known to be present 14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the specification for use on the site. **This must relate to the place where materials are to be used.** This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a risk assessment is not relevant for a particular receptor given the site setting please explain why below:	Document Reference(s): REC, Phase 1 and 2 Geo-environmental Site Investigation Report, Ref: 46009P1R0 dated April 2015 presented in Appendix C; LK Consult, Addendum Gas Risk Assessment and Updated Remediation Strategy Report, Ref: CL-602-LKC-20 1836-02 dated January 2021 presented in Appendix D. LK Consult, Enabling Works Verification Report, Report Ref; LKR211003_VR dated September 2021 presented in Appendix E. EDGE Consulting Engineers Site Investigation Report for 211196 – School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0005_SI REPORT [P01] dated 12th July 2024 presented in Appendix F.
14b. Please attach any relevant documentation from the LA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	LA Document references: Planning Permission Ref 69233 presented in Appendix G.
14c. Please attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and	EA Document references: e-mail from Stephen Bostock (EA) to EDGE dated 13/10/24 presented in Appendix H.

Table 2 of the CoP)	
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	Document Reference(s): N/A

Where contamination is not suspected 15a. Please attach copies or relevant extracts from the Desk Top Study that demonstrates that there is no suspicion of contamination.	Document Reference(s) N/A
15b. Please attach copies of or relevant extracts from the site investigation/testing reports that adequately characterise the clean materials to be used (if appropriate).	Document Reference(s) Donor Site (Peel Hall): E3P Phase II Geoenvironmental Site Assessment, Peel Hall, Warrington, Report Ref: 15-740-R1-1 dated May 2022, presented in Appendix L.
15c. Please attach copies of any other relevant information (if available) confirming that land contamination is not an issue.	Document Reference(s) N/A

NB: It is your responsibility to assess the nature of the material to be used and that it fits within the limitations of the scenario under which it is to be used

Certainty of use

Various lines of evidence are required to demonstrate that the materials are certain to be used. This includes:

- The production of this MMP
- An appropriate planning permission (or conditions that link with the reuse of the said materials)
- An agreed Remediation Strategy(ies)
- An agreed Design Statement(s)
- Details of the contractual arrangements

Please identify in the following sections what lines of evidence relate to the site(s) **where the materials are to be used**.

16a. Planning Permission(s) relating to the site where materials are to be reused Please provide a copy of the relevant planning permission	Document Reference: Planning Permission Ref 69233 presented in Appendix G.
16b. Explain how the reuse of the excavated materials fits within the planning permission(s) for each site.	The site won soils and earthworks are required to facilitate the construction of a stable development platform in order to progress the development as detailed in the remediation strategy. Imported topsoil from Donor Site (Peel Hall) to be used in gardens and landscaping as part of clean soil cover layer specified in remediation strategy.

16c. If planning permission is not required for any one site please explain why below e.g. permitted development, clean up of a chemical spill, surrender of an Environmental Permit, re-contouring within the existing permission.	N/A

Where contamination is suspected or is known to be present 17. Please provide a copy of any Remediation Strategy(ies) that have been agreed with relevant regulators.	Document Reference(s): EDGE remediation strategy presented in Appendix I.

Where contamination is not suspected 18. Please provide a copy of any Design Statement(s) that have been agreed (e.g. with the planning authority or in the case of permitted developments the client).	Document Reference(s): N/A

Quantity of Use

19. Please provide a breakdown of the excavated materials for each site and how much will be placed at each site or sub area of each site. Where this is not specific to a single readily identifiable source refer to an annotated plan, schematic or attach a tabulated summary.	Document Reference(s): The earthworks will include the excavation of the made ground and natural soils as drainage arisings and the utilisation of the existing stockpiles in accordance with the cut/fill drawings. As the site has already been remediated, no treatment, crushing or screening is required. Cut volume: 2,724 m^3 Shortfall: 2,118 m^3 **Total 4,842 m^3** 1,032 m^3 of clean topsoil is proposed to be imported to the site for use in gardens and landscaped areas from Peel Hall Lane, Warrington.

20a. How has consolidation/compaction being considered in the above mass balance calculations?	A bulking factor has been applied to the cut model.
20b. How has loss due to treatment being considered in the above mass balance calculations (if applicable)?	N/A
20c. How has the addition of treatment	N/A

materials being considered in the above mass balance calculations (if applicable)? Note - An exact figure is not required but one that is reasonable in the circumstances and can be justified if challenged.	

Contingency arrangements

Explain what is to happen in the following situations and **identify the appropriate clauses** in the contract(s) (Such clauses must be provided to the Qualified Person, preferably as a summary document): or

21a. What is to happen to, and who is to pay for out of specification materials?	Reference: Disposal of out of specification materials will ultimately be paid for by Hive Homes (Greater Manchester) LLP
21b. What is to happen to, and who is to pay for any excess materials?	Reference: Disposal of out of specification materials will ultimately be paid for by Hive Homes (Greater Manchester) LLP
21c. What happens if the project programme slips in relation to excavated materials or materials under -going treatment?	Reference: Hive Homes (Greater Manchester) LLP to address any issues,
21d. Other identified risk scenarios for the project (relating to excavated materials)?	Reference: Previously unidentified contamination or unforeseen ground conditions will be dealt with in accordance with the remediation strategy.

The Tracking System

Where contamination is suspected or known to be present, state the procedures put in place to:

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	A documented tracking system will be in place for monitoring all movements of material around the donor and receiver site. This tracking system shall include the volume of materials, their current status (e.g, natural soils, aggregate suitable for use) details of its source and details of the backfill location. The information shall also include topographic surveys: pre-works, excavation extent, stockpiles, and post completion.
Where contamination is suspected or known to be present, state the procedures put in place to: 22b. Prevent contaminants not suitable for the treatment process being accepted	Pre classification of the site together with existing site investigation data has and will be interpreted to determine where the unsuitable materials identified for disposal are located on site. During excavation works selective excavation will be carried out to enable the materials to be kept separate.
Where contamination is suspected or known to be present, state the procedures put in place to: 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials	The remediation enabling works were originally undertaken in 2021 and no significant contamination is expected to be present. However should any previously unidentified contamination be encountered (for example in drainage arisings), these will be placed in a bunded area on an impermeable surface. All stockpiles will be dampened down in periods of dry weather to prevent dust and/or contamination from being blown across the site.
Where contamination is suspected or known to be present, state the procedures put in place to:	Lines of evidence to demonstrate that this material is suitable for reuse and where it has been backfilled will include: The tracking system, Photographs of suitable materials being backfilled at depth, chemical & geotechnical sampling & testing of the suitable for use material.

22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination	
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility	Given that the site has been remediated, no materials are anticipated to be required to be disposed of off-site. However, should this be the case, materials shall be sampled to allow analysis for either reuse or waste classification and will not be used or disposed of until the analysis results have been received and the materials have been appropriately classified. Details of the waste materials shall be recorded as part of the documented tracking system, as specified above. Records shall be kept of the waste carriers used for transporting waste for off-site disposal and the details of the acceptor of the waste materials along with a copy of a duty of care note and receipt ticket from the disposal facility.

23. Please attach a copy of the tracking forms / control sheets that are to be used to monitor materials movements. To include transfer of loads on site into stockpiles prior to treatment (if applicable), stockpiled after treatment (if applicable), stockpiled awaiting use (as appropriate) and final placement.	Document reference(s) MMP tracking system forms presented in Appendix J.

For Hub Sites within Cluster Projects & where materials need treatment before reuse 24. Please attach a copy of the Environmental Permit covering the treatment process. Alternatively if the treatment is covered by a Mobile Plant Permit and associated Deployment Form, attach a copy of the EA agreement to the Deployment Form.	Permit reference / EA letter reference: N/A as no treatment required.

Records

25. Where, and in what form, are records to be kept? Note – records e.g. transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s) need to be kept for at least 2 years after the completion of the works and production of the Verification Report	Hard copies of files will be contained on site within the site files. Electronic copies of all files that will also be kept by DXI Remediation and Hive Homes (Greater Manchester) LLP.

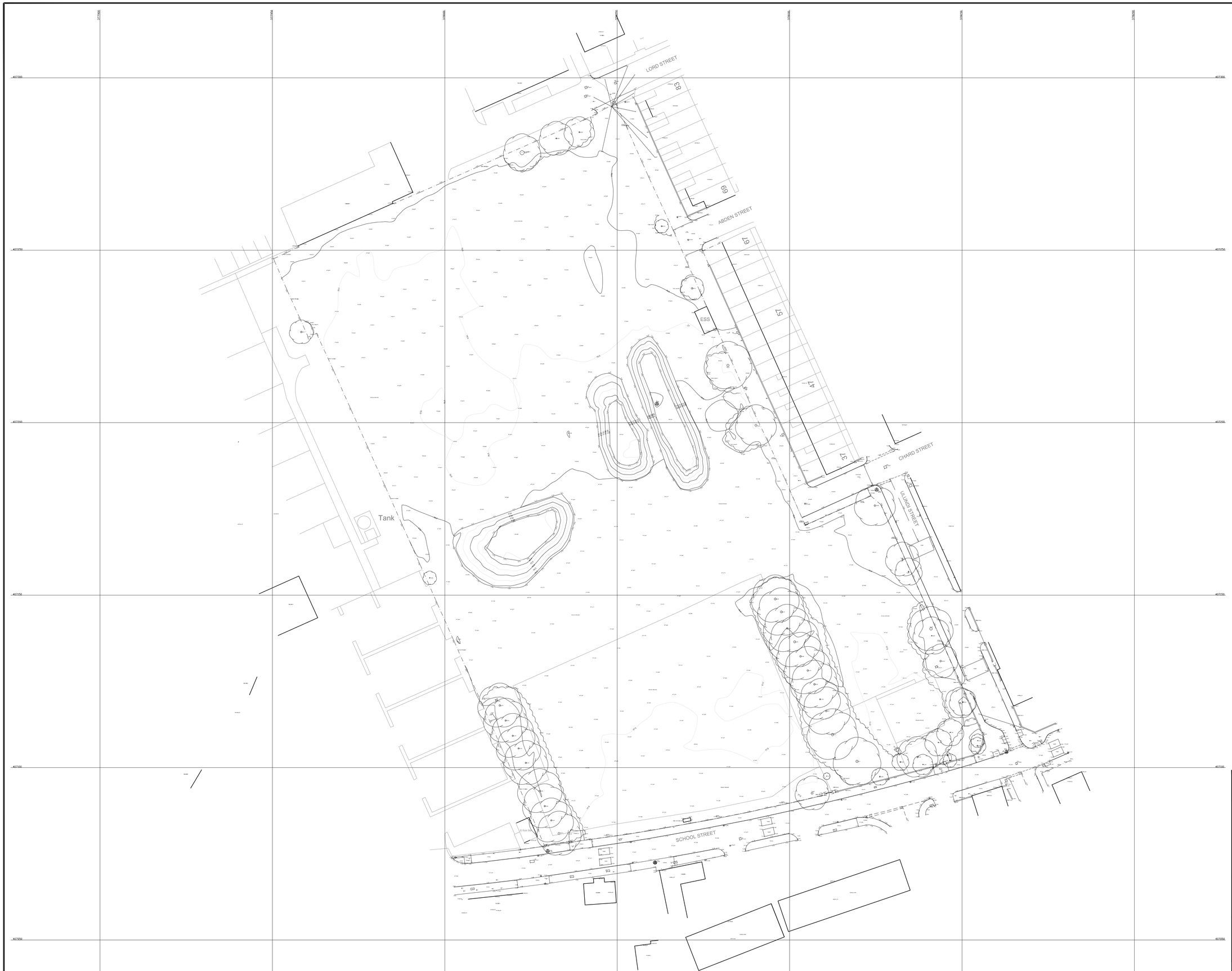
Verification Plan

26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Document Reference The works will be verified by DXI Remediation and EDGE in accordance with relevant guidance. The following will be undertaken by DXI Remediation and EDGE on site: • Introduction, including description of the project and background to the works. • Summary references to site investigation data, risk assessments and the Remedial Strategy. • A description of the works undertaken and any treatment records. • Details of chemical validation testing. • Details of how any out of specification materials were dealt with and final destination, including waste transfer notes. • Appropriate site plans and photographic record. • Conclusions, detailing any additional works that may be required. • Details of any long term monitoring requirements, if any. A thorough list of the verification requirements can be found within the Remediation Strategy. Throughout the works, progress reports will be prepared in advance of weekly / monthly progress meetings to report and document the findings of the above environmental monitoring and sampling. This will provide the opportunity to review the progress of the works in meeting the specified objectives in the Works Information and

	those stated in the planning requirements. • The remediation works are to be supervised and verified by DXI Remediation on a full time basis. The above records will be provided to Hive Homes and EDGE by DXI Remediation for inclusion in the verification report which will be submitted by (1st April 2028). • EDGE will produce the verification report to submit to CL:AIRE to include details of the above as well as: Reference to the MMP (if utilised), records of where material was moved from/imported from/to and final destinations, including volumes, suitable for use criteria, QP declaration references etc.

APPENDIX A

Drawings



Topographical Survey Legend

Bin	Litter bin	TL	Tie line
BH	Bore Hole	TP	Telegraph pole
Bol	Bollard	TPS	Tactile paving slabs
BS	Bus stop	TS	Traffic signal light
BT	British telecom ic	TV	Television cover
CPS	Concrete paving slabs	VP	Vent pipe
DR	Drain	WM	Water meter
Elec	Electrical ic	WO	Wash Out
EP	Elec. pole	UTL	Unable to lift
ER	Earth rod	Fence annotation	
FH	Fire Hydrant	B/W	Barbed wire
FP	Flagpole	C/B	Closed boarded
FT	Floodlight	C/I	Corrugated iron
G	Gully	C/L	Chain link
GP	Gate post	C/P	Concrete panel
GV	Gas valve	H/R	Hand rail
IC	Inspection cover	I/R	Iron railings
JB	Junction box	O/B	Open boarded
KO	Kerb outlet	P/C	Post & chain
LB	Letter box	P/R	Post & rail
LP	Lamp post	P/W	Post & wire
Mkr	Utility marker	W/M	Wire mesh
MP	Mile post	Level prefix descriptions	
MW	Monitoring Well	Ah	Arch level
NP	Name plate	BL	Bed level
P	Post	CL	Cover level
PM	Parking meter	EH	Eaves level
RE	Rodding eye	FL	Floor level
RS	Road sign	IL	Invert level
rwp	Rain water pipe	PL	Parapet level
SP	Sign post	RH	Roof/ridge level
ST	Stop tap	SL	Soffit level
SB	Service Box	Spr	Arch springing level
SV	Stop valve	Top	Top of pipe/culvert
TCB	Telephone call box	WH	Wall height
TH	Trial Hole	WL	Water level

BENCH MARK INFORMATION

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

NOTES

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD. THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

SURVEY STATIONS			
STN1	378060.989	407072.458	77.256
STN2	378162.896	407104.523	78.008
STN3	378029.831	407075.787	77.480
STN4	378125.244	407180.558	78.330

REVISIONS

REV	DESCRIPTION	SURVEYED	DRAWN	DATE

JLP Surveying

JLP Surveying Consultants Ltd,
Suite 45 Rodney House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492230
Mobile - 07710 428498
EMAIL:- peterhouston@jlpsurveys.com

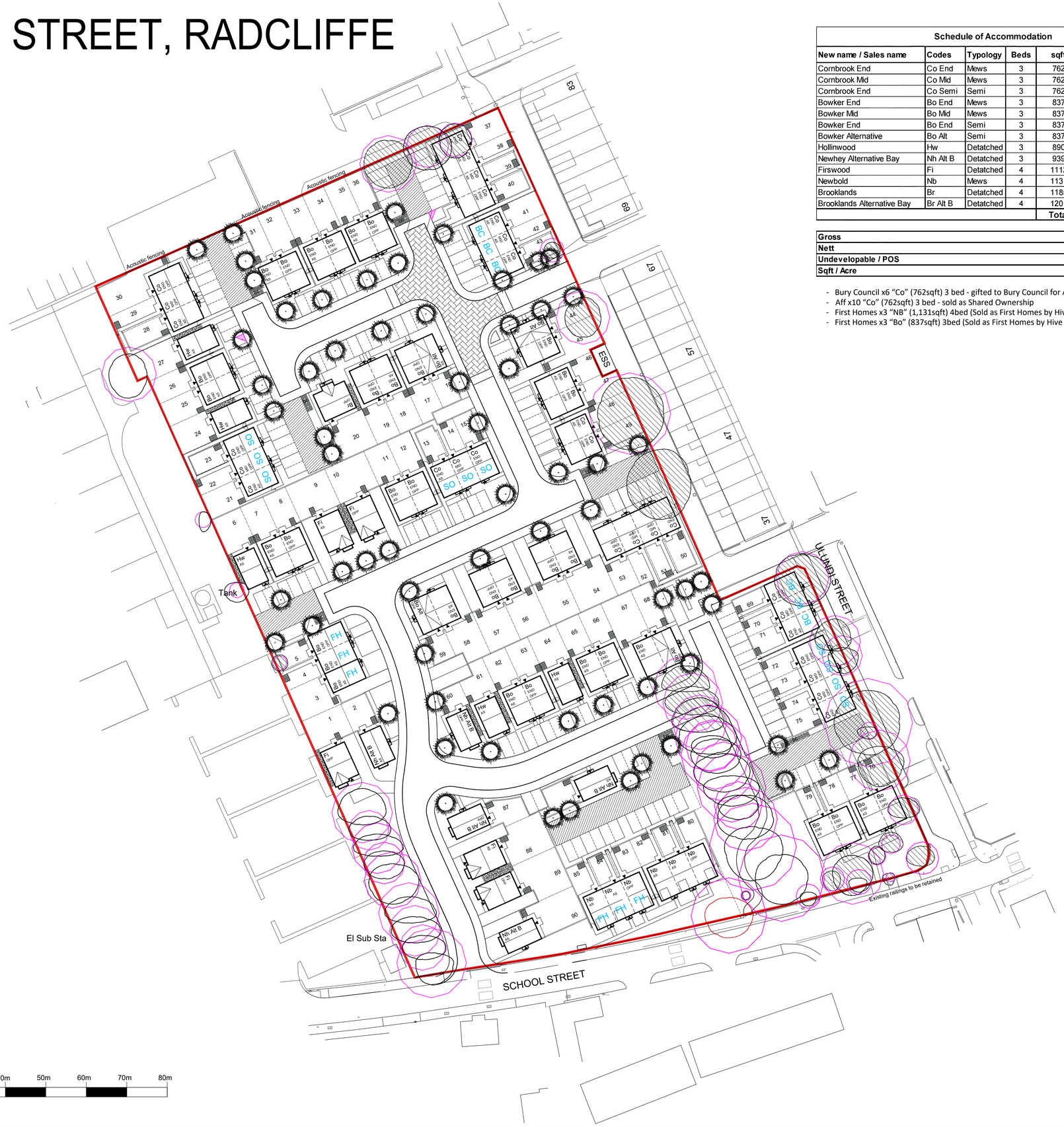
PROJECT
SCHOOL STREET
RADCLIFFE

DRAWING TITLE
Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1 :500	A1	1	08.11.2021	

DRAWING NUMBER
S21-1045

SCHOOL STREET, RADCLIFFE



0m 10m 20m 30m 40m 50m 60m 70m 80m

1 : 500

Schedule of Accommodation						
New name / Sales name	**Codes**	**Typology**	**Beds**	**sqft**	**Total**	**Total Sqft**
Cornbrook End	Co End	Mews	3	762	16	12192
Cornbrook Mid	Co Mid	Mews	3	762	11	8382
Cornbrook End	Co Semi	Semi	3	762	2	1524
Bowker End	Bo End	Mews	3	837	2	1674
Bowker Mid	Bo Mid	Mews	3	837	1	837
Bowker End	Bo End	Semi	3	837	32	26784
Bowker Alternative	Bo Alt	Semi	3	837	4	3348
Hollinwood	Hw	Detatched	3	890	5	4450
Newhey Alternative Bay	Nh Alt B	Detatched	3	939	5	4695
Firswood	Fi	Detatched	4	1112	5	5560
Newbold	Nb	Mews	4	1131	6	6786
Brooklands	Br	Detatched	4	1185	1	1185
Brooklands Alternative Bay	Br Alt B	Detatched	4	1201	0	0
				Total	**90**	**77417**

Gross	**5.74**	**ACRES**
Nett	**5.04**	**ACRES**
Undevelopable / POS	**0.7**	**ACRES**
Sqft / Acre	**15360.52**	**ACRES**

- Bury Council x6 “Co” (762sqft) 3 bed - gifted to Bury Council for Affordable Rent
- Aff x10 “Co” (762sqft) 3 bed - sold as Shared Ownership
- First Homes x3 “NB” (1,131sqft) 4bed (Sold as First Homes by Hive Homes)
- First Homes x3 “Bo” (837sqft) 3bed (Sold as First Homes by Hive Homes)

general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and specifications relating to the job whether or not indicated on the drawing.
copyright reserved to mck associates ltd. and this drawing may not be used or reproduced without prior written consent.

KEY

- Land Ownership
- Existing trees to be removed
- Indicative planting
- Indicative hedging
- Denotes shared drives
- Denotes raised table
- Retained tree - see tree report for catagory
- root protection area
- Denotes clean stone
- BC — Gifted housing to Bury Council for affordable rent
- FH — Housing for First Homes.
- SO — Housing for shared ownership

Rev.	Date	By	Description
Z	15.04.2024	WL	Update layout: patios all amended, bins & clean stone areas shown
Y	05.03.2024	AT	Update layout: parking provision and bin storage provision Northern boundary fence amended. -Layout small comments tidied up
X	03.01.2024	WL	Plot 30 northern red edge amended
W	03.01.2024	WL	Sub-station excluded from red edge. New red boundary.
V	20.10.2023	WL	Shared ownership text changed to affordable rent in key and under schedule.
U	16.08.2023	WL	Knee rail added to 2 no. between drive & footpath. 0.5m added for this after drive
T	15.08.2023	WL	Knee rail added in front of 76 path for 76-79 increased to 1.2m
S	15.08.2023	WL	Drive amended for plots 5, 31 & 38
R	14.08.2023	WL	Footpath & knee rail added to front of 76-79 to utilise 2nd gateway
Q	09.08.2023	WL	Plot 80, 81 & 82 FH amended to plots 3, 4 & 5
P	14.07.2023	WL	amended location of affordable tenures. Garages removed
N	17.04.2023	CT	amended location of affordable tenures
M	05.04.2023	WL	Trees retained at left of entrance
L	28.03.2023	CT	Amended road in front of plots 86
K	27.03.2023	CT	Amended access and plots to south
J	23.03.2023	CT	Caddied up amends and additional changes to plots 12 - 21
I	27.02.2023	CT	Sketch insert showing changes following planners comments
H	19.01.2023	MHR	2m high bund added with heavy duty fence
G	28.11.2022	WL	BC, FH, AFF marked on. Key updated
F	14.03.2022	AT	Amended turning heads to ease access for refuse vehicle.
E	22.02.2022	AT	Changed gifted plots from 62-65 to plots 55-57 following email.
D	18.02.2022	AT	Amended units 12-17 and 51-57. Also updated key for marked units.
C	27.01.2022	WL	Amended kerbs & road widths at turning head between 83-84
B	18.01.2022	WL	Amended drives in front of 80-87
A	17.01.2022	CT	Amended plot 42, 73. added a raised table. extended turning head towards plot 44

Client:

Hive HOMES

mck associates limited
architecture ‖ building surveying ‖ urban design
burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk

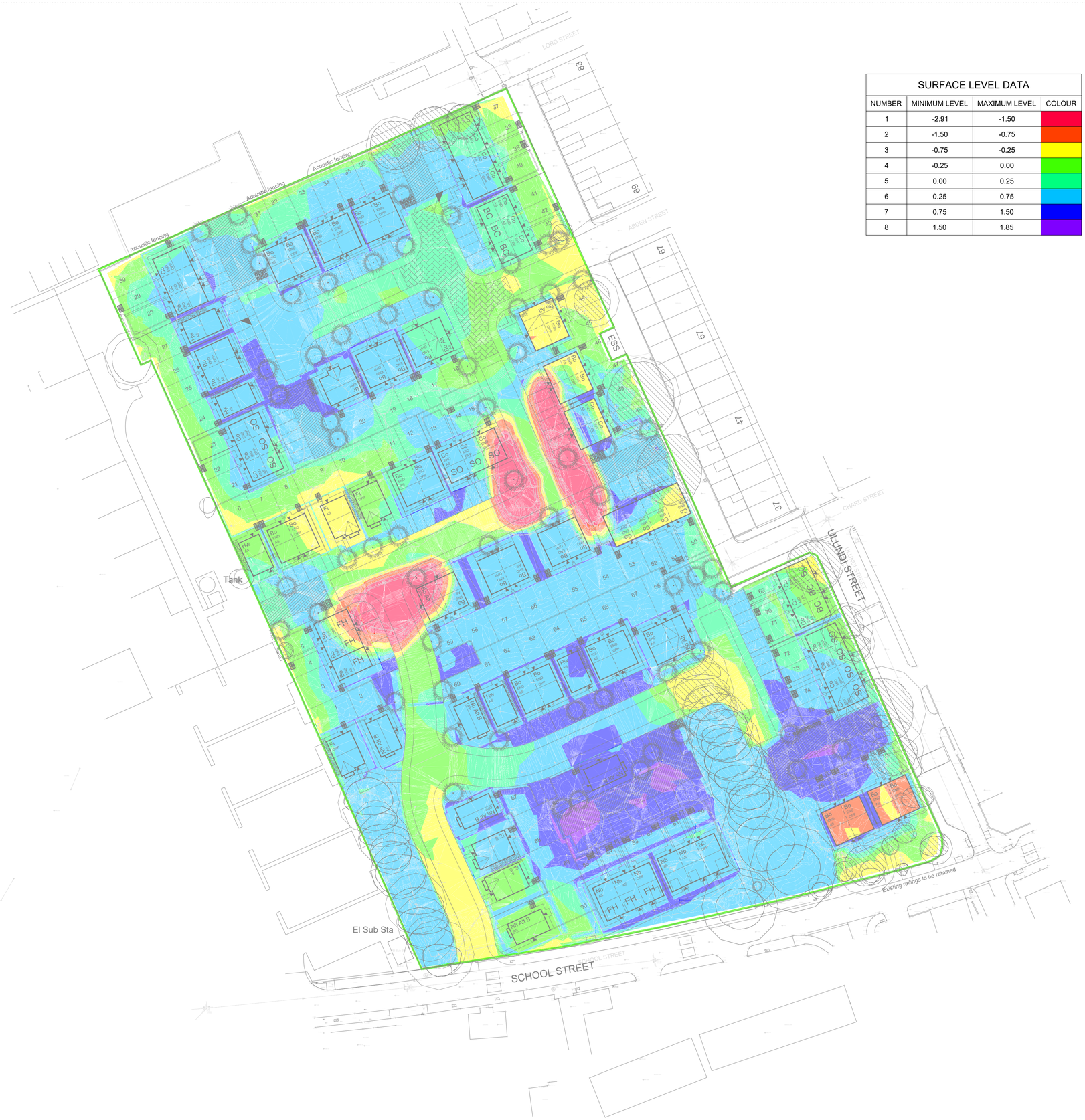
Project:
SCHOOL STREET
RADCLIFFE

Drawing Title:
PROPOSED LAYOUT

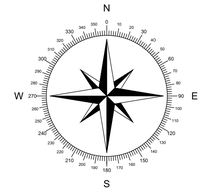
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C.T		1:500	NOV 2021
Job No:		Drawing No:	Rev:
21-039		PL01	Z

A1

PLANNING



SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-2.91	-1.50	
2	-1.50	-0.75	
3	-0.75	-0.25	
4	-0.25	0.00	
5	0.00	0.25	
6	0.25	0.75	
7	0.75	1.50	
8	1.50	1.85	



NOTES:

THIS DRAWING IS NOT FOR CONSTRUCTION AND THE INFORMATION PROVIDED IS FOR FEASIBILITY PURPOSES.

1. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR HIGHWAYS.
2. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR FOOTWAYS.
3. 300mm CONSTRUCTION BUILD UP IS ASSUMED FOR PRIVATE ROADS AND PRIVATE DRIVES.
4. 600mm FORMATION DEPTH IS ASSUMED FOR GARDENS.
5. FOUNDATION DEPTH OF ALL PLOTS IN LINE WITH EDGE STRUCTURAL SCHEMATIC DRAWINGS:
   "211196-EDGE-XX-XX-DR-S-8001 FOUNDATION SCHEMATIC PLAN"
   - PILED PLOTS: TOP OF MAT LEVEL 600MM BELOW FFL
   - VIBRO PILE PLOTS: TOP OF MAT LEVEL 600MM BELOW FFL
   - STRIP/TRENCH FILL: 900MM-1200MM BELOW FFL
6. PILE MAT FROM SITE WON MATERIAL
7. EXISTING TOPO LEVELS ARE TAKEN FROM THE TOPOGRAPHIC SURVEY.

CUT AND FILL REPORT

BASE SURFACE	STRIPPED TOPO
COMPARISON SURFACE	FORMATION
CUT FACTOR	1.200
FILL FACTOR	1.000
CUT VOLUME (ADJUSTED)	3724.14 CU. M.
FILL VOLUME (ADJUSTED)	8035.27 CU. M.
NET VOLUME (ADJUSTED)	4311.13 CU. M.<FILL>
CUT VOLUME (UNADJUSTED)	3103.45 CU. M.
FILL VOLUME (UNADJUSTED)	8035.27 CU. M.
NET VOLUME (UNADJUSTED)	4931.82 CU. M.<FILL>

ADDITIONAL VOLUME TO BE CONSIDERED WITHIN THE CUT AND FILL EXERCISE.

DRAINAGE ARISINGS

A 200MM ADDITIONAL VOLUME OF CUT HAS BEEN ASSUMED FOR EMBEDMENT AND SURROUND OF ALL MANHOLES.

A 200MM ADDITIONAL VOLUME OF CUT HAS BEEN ASSUMED FOR EMBEDMENT AND SURROUND OF ALL SEWER PIPES.

IT HAS BEEN ASSUMED THAT PIPE TRENCHES ABOVE THE 200MM MENTIONED ABOVE WILL BE BACKFILLED USING AS DUG MATERIAL. THEREFORE THE VOLUME OF CUT FOR PIPES INCLUDING BED AND SURROUND HAS BEEN CALCULATED AS FOLLOWS:

Pipe size	Total Length	Volume
150mmØ	284.10m	85.940m³
225mmØ	12.40m	4.843m³
375mmØ	15.40m	9.250m³
450mmØ	16.36m	11.820m³
1050mmØ	324.40m	682.051m³
		793.90m³

Manhole size	Total Depth	Volume
1200Ø	25.686m	65.756m³
1350Ø	2.617m	8.015m³
1500Ø	6.066m	21.90m³
1800Ø	2.294m	11.103m³
2400Ø	15.880m	124.50m³
2700Ø	9.040m	86.874m³
		318.148m³

PLOT DRAINAGE (5m³ x 91 PLOTS) 455.000m³

ATTENUATION TANK 260.30m³

TOTAL 1,827.348m³ (2,192.817 20% BULK)

SUM OF CUT AND FILL:

CUT AND FILL MODEL	=	4,311.13m³ FILL
MINUS		
DRAINAGE ARISING'S	=	2,192.817m³ CUT
TOTAL	=	2,118.313m³ FILL

Rev	Date	Description	By	Chk
P03	23.08.24	Updated to latest levels and drainage redesign	H.S.	R.A.
P02	30.04.24	Updated in line with latest site layout	H.S.	R.A.
P01	22.03.23	PRELIMINARY - Issued for Information	A.R.	M.A.

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Project Name
SCHOOL STREET
RADCLIFFE

Client
HIVE HOMES LLP

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
CUT AND FILL
ISOPACHYTE LAYOUT

Project No.
211196

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
211196-EDGE-XX-XX-DR-C-1001

Revision
P03

FILENAME:
PLOT DATE:
0 mm 10 20 30 40 50



N

W E

S

NOTES:

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2700Ø	9.040m	86.874m³
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PLOT DRAINAGE (5m³ x 91 PLOTS)	455.000m³
ATTENUATION TANK	260.30m³
TOTAL	1,827.348m³ (2,192.817 20% BULK)

SUM OF CUT AND FILL:

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TOTAL	=	2,118.313m³ FILL

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Project Name
SCHOOL STREET
RADCLIFFE

Client
HIVE HOMES LLP

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
CUT AND FILL FORMATION LEVELS

Project No.
211196

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
211196-EDGE-XX-XX-DR-C-1002

Revision
P03

FILENAME:
PLOT DATE:

0 mm 10 20 30 40 50

APPENDIX B

Human Health Assessment Criteria

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HUMAN HEALTH RISK ASSESSMENT CRITERIA

Determinand	Within 600 mm Capping Layer – Garden[1] (mg/kg)	Within 300 mm Capping Layer – POS[2] (mg/kg)
Metals		
Arsenic	37	79
Boron	290	21,000
Cadmium	11	120
Chromium^{VI}	6	7.7
Copper	2,400	12,000
Lead*	200	630
Mercury (inorganic)	40	120
Nickel	130	230
Selenium	250	1,100
Zinc	3,700	81,000
Polycyclic Aromatic Hydrocarbons (SOM 1%/ 2.5%/ 6%)		
Acenaphthene	210 / 510 / 1100	15,000 / 15,000 / 15,000
Acenaphthylene	170 / 420 / 920	15,000 / 15,000 / 15,000
Anthracene	2,400 / 5,400 / 1,1000	74,000 / 74,000 / 74,000
Benz(a)anthracene	7.2 / 11 / 13	29 / 29 / 29
Benzo(a)pyrene (Bap)	2.2 / 2.7 / 3.0	5.7 / 5.7 / 5.7
Benzo(b)fluoranthene	2.6 / 3.3 / 3.7	7.1 / 7.2 / 7.2
Benzo(g,h,i)perylene	320 / 340 / 350	640 / 640 / 640
Benzo(k)fluoranthene	77 / 93 / 100	190 / 190 / 190
Chrysene	15 / 22 / 27	57 / 57 / 57
Dibenzo(ah)anthracene	0.24 / 0.28 / 0.3	0.57 / 0.57 / 0.58
Fluoranthene	280 / 560 / 890	3,100 / 3,100 / 3,100
Fluorene	170 / 400 / 860	9,900 / 9,900 / 9,900
Indeno(1,2,3-cd)pyrene	27 / 36 / 41	82 / 82 /82
Naphthalene	2.3 / 5.6 / 13	4,900 / 4,900 / 4,900
Phenanthrene	95 / 220 / 440	3,100 / 3,100 / 3,100
Pyrene	620 / 1,200 / 2,000	7,400 / 7,400 / 7,400
Speciated Total Petroleum Hydrocarbons (SOM 1%/ 2.5%/ 6%)		
Aliphatic EC 5-6	42 / 78 / 160	57,000^{sol} (304) / 59,000 / 60,000
Aliphatic EC >6-8	100 / 230 / 530	60,000 / 61,000 / 62,000
Aliphatic EC >8-10	27 / 65 / 150	13,000 / 13,000 / 13,000
Aliphatic EC >10-12	130^{vap} (48) / 330^{vap} (118) / 760^{vap} (283)	13,000 / 13,000 / 13,000
Aliphatic EC >12-16	1,100^{sol} (24) /2,400^{sol} (59) /4,300^{sol} (142)	13,000 / 13,000 / 13,000
Aliphatic EC >16-35	65,000^{sol} (8.48) /92,000^{sol} (21) / 110,000	25,000 / 25,000 / 25,000
Aliphatic EC >35-44	65000^{sol}(8.48) / 92000^{sol} (21) / 110000	25,000 / 25,000 / 25,000
Aromatic EC 5-7 (benzene)	370 / 690 / 1400	56,000 / 56,000 / 56,000

Determinand	Within 600 mm Capping Layer – Garden[1] (mg/kg)	Within 300 mm Capping Layer – POS[2] (mg/kg)
Aromatic EC >7–8 (toluene)	130 / 290 / 660	56,000 / 56,000 / 56,000
Aromatic EC >8–10	34 / 83 / 190	5,000 / 5,000 / 5,000
Aromatic EC >10–12	74 / 180 / 380	5,000 / 5,000 / 5,000
Aromatic EC >12–16	140 / 330 / 660	5,100 / 5,100 / 5,000
Aromatic EC >16–21	260 / 540 / 930	3,800 / 3,800 / 3,800
Aromatic EC >21–35	1100 / 1500 / 1700	3,800 / 3,800 / 3,800
Aromatic EC >35–44	1100 / 1500 / 1700	3,800 / 3,800 / 3,800
BTEX Compounds (SOM 1%/ 2.5%/ 6%)		
Benzene	0.087 / 0.17 / 0.37	72 / 72 / 73
Toluene	130 / 290 / 660	56,000 / 56,000 / 56,000
Ethylbenzene	47 / 110 / 260	24,000 / 24,000 / 25,000
O – Xylene	60 / 140 / 330	41,000 / 42,000 / 43,000
M – Xylene	59 / 140 / 320	41,000 / 42,000 / 43,000
P – Xylene	56 / 130 / 310	41,000 / 42,000 / 43,000
Phenol		
Phenol	120 / 200/ 380	440 (10,000) / 690 (10,00) / 1,300 (10,000)

Notes

[1] Based on SSVs for Residential End Use with Plant Uptake
[2] Based on SSVs for POS (Residential) End Use

All SSVs based on Suitable 4 Use Levels (S4UL) apart from * where Category 4 Screening Levels (C4SL) are to be used

[vap] S4UL presented exceeded the vapour saturation limit, which is presented in brackets
[sol] S4UL presented exceeds the solubility saturation limit, which is presented in brackets

APPENDIX C

REC Phase 1 and 2 Report
2015

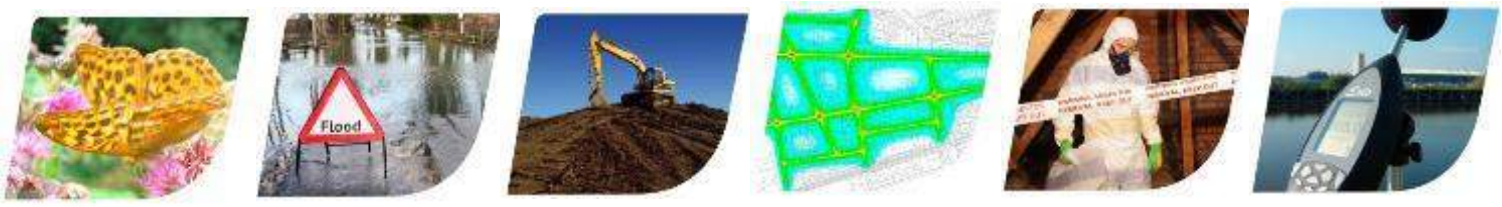
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PHASE I & II GEO-ENVIRONMENTAL SITE INVESTIGATION

REC REFERENCE: 46009P1R0

REPORT PREPARED FOR: GALLIFORD TRY BUILDING & BURY METROPOLITAN BOROUGH COUNCIL

APRIL 2015



QUALITY ASSURANCE

Issue/revision	Issue 1	Revision 1	Revision 2
Remarks	Draft		
Date	March 2015		
Prepared by	C.Radiven		
Qualifications	BSc (Hons)		
Signature			
Checked by	N Martin		
Qualifications	BSc (Hons) FGS		
Signature			
Authorised by	R Paul		
Qualifications	BSc (Hons) FGS)		
Signature			
Project number	46009p1r0		

EXECUTIVE SUMMARY	
Site Address	Former Riverside School site, School Street, Radcliffe, M26 3BP
Grid Reference	E378060, N407141
Site Area	2.35ha
Current Site Use	The site is accessed via Abden Street to the north east and School Street to the south and is bounded by residential properties to the east and south of the site. Radcliffe Building Supplies is located to the north, and the land to the west is occupied by Millwood School. The site comprises a former Riverside School. The site in its current state consists of a mixture of concrete slabs/foundations from the old school with associated asphalt and former areas of soft landscaping now overgrown. The site is 5.7 acres (2.3 Ha) in size, and is relatively level falling 1.85m over 200m from north to south. The boundaries are a mixture of metal fencing/brick dwarf wall/brick pier to the eastern and southern boundary and a 2.5m high mesh fence to both northern and western boundary with intermittent dense vegetation and trees.
Environmental Setting	**Geology** Devensian Till overlying Pennine Middle Coal Measures Formation. **Hydrogeology** The site is underlain by a Secondary A aquifer relating to the Pennine Middle Coal Measures Formation (moderate risk receptor). Superficial deposits are recorded as unproductive. There are no potable groundwater abstractions within 2km of the site. **Hydrology** Manchester, Bolton and Bury Canal and River Irwell are located 56m to the west and 287m to the south respectively. The site is not within an area that is at risk from flooding. **Compressible Ground and Subsidence Hazards** No hazard. No special precautions with regard to foundations anticipated. **Sensitive Land Uses -** Residential properties with gardens in close proximity. **Ecology**: An ecological survey should be undertaken as part of the proposed development.
Site History	Historical maps indicate that the site was part of a wider recreational area which remained mostly undeveloped until circa 1909 when the north of the site was occupied by many small buildings of unspecified use. The site was then developed for a large school building and subsequent developments, which occupied the site until circa 2011 when the majority of the school and associated buildings were demolished with the exception of a small building in the south east of the site.
Utility Locations	A review of online data held by United Utilities shows no sewer or drainage services on site, only along surrounding boundaries; however it is considered that this is likely to be due to lack of survey data as oppose to the complete absence of any infrastructure.
Landfill Sites & Ground Gases	Three historical landfill sites have been identified within 250m of the subject site. The nearest is located approximately 184m to the south of the subject site. Three records of waste treatment transfer or disposal sites are listed within 250m of the site. There is a potential for ground gas generation from the underlying Made Ground/coal mining.
Radon	Online Radon UK maps suggest that the site is within an area where maximum radon potential is between 1-3%.

Coal Mining / Land Stability	According to online Coal Authority mapping the site is situated within a Development High Risk Area, likely associated with the probable shallow coal mine workings within the subject area. A historic mine entry is located to the north east of the site; in the area of Abden Street/Ulundi Street. A Coal Mining Risk Assessment (CMRA) is being conducted and will be reported separately (46009p2r0).
Intrusive Ground Investigation	
Ground Conditions	Topsoil was encountered in the northern and central section of the site and in the south eastern part of the site. Topsoil across the site had an average thickness of 0.3m and contained visual evidence of brick and concrete. The Topsoil is considered physically unsuitable for reuse in the development. Made Ground was encountered across the entire site. The north west, the east and the south east of the site were surfaced in asphalt with an average thickness of 0.10m. Made ground was encountered beneath the majority of the site beneath the grassed areas between depths of 0.0m and 2.0m bgl. Relict foundations and obstructions in the form of concrete slabs and brick walls were recorded between ground level and 2.0m bgl beneath the footprint of the former school building. Glacial till was encountered at depths between 0.2m and 1.5m bgl and was proven to extend to a depth of at least 5.45m bgl. The maximum thickness of glacial till was not proven during the investigation. The glacial deposits comprised firm to stiff Clay which was generally interbedded with Sands and also clayey gravelly Sands with cobbles of mudstone and lenses of stiff Clay and some silty Sands. Solid geology was not encountered during this investigation.
Tier 1 Contaminated Land Risk Assessment	
Human Health	The Tier I Human Health Risk has identified elevated concentrations of heavy metals and polycyclic aromatic hydrocarbons associated with the Made Ground across the entirety of the site. All soft landscaped areas throughout the site are to be provided with a minimum 600mm cover of clean soil. This will remove the exposure pathway and ensure there is no unacceptable risk to human health. Any material movements within this area should be undertaken in a controlled manner, managed by a regulatory approved Remediation Strategy and utilising appropriate PPE to ensure there is no risk to those undertaking the works or the adjacent residents.
Controlled Waters	Whilst marginal exceedances with regard to Mercury and PAHs were recorded, REC has determined that there is no unacceptable level of risk to controlled waters due to the distance to controlled water receptors and underlying Glacial Till retarding migration of contaminants.
Ground Gas	A 3 month ground gas assessment is being undertaken and an addendum report will be issued upon its completion. Radon protection measures will not be required at the site.
Potable Water Infrastructure	A United Utilities risk assessment will be required.
Geotechnical Assessment	
Underground Obstructions	Relict foundations and floor slabs have been encountered under the footprint of the former school building.
Allowable Bearing Capacity	Ground improvement will provide an allowable bearing capacity of approximately 150kN/m^2.
Foundation Options	Ground improvement by means of vibro stone columns is recommended for the site. Further options include raft foundations and piling.
Soak-away Drainage	Due to the presence of low permeability Clays and the presence of perched groundwater bodies, soakaways are not considered suitable at the site.

Sulphate Assessment	Concrete design sulphate class DS-1 and ACEC AC-1 classifications apply. Consideration should be given to increasing this to DS-2 AC-2 in the vicinity of WS108.
CBR Design %	4%
Waste Classification	It is recommended that any materials requiring disposal at landfill should be Waste Assessment Criteria (WAC) tested.

Developed Conceptual Site Model (CSM)

A 600mm clean cover system will mitigate against the risks to human health identified at the site.

No significant risks to controlled water have been identified at the site.

A ground gas assessment being undertaken and an addendum report will be issued upon its completion.

Movement of the impacted soils around the site will require a Materials Management Plan to be undertaken for the site. The Materials Management Plan (MMP) is a document designed in accordance with the Development Industry Code of Practice (COP) "The Definition of Waste", published by Contaminated Land: Application in Real Environments (CL:AIRE). The COP relates to the re-use of chemically and geotechnically suitable materials where a definitive need has been established as part of the development process.

A detailed Remediation Strategy should be agreed with the local authority.

Recommendations

A detailed Remediation Strategy should be agreed with the local authority.

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1.0 INTRODUCTION

1.1 Background

Resource and Environmental Consultants (REC) Ltd has been commissioned by Galliford Try Building andBury Metropolitan Borough Council to undertake a Phase I and II investigation at School Lane, Radcliffe, the site of the former Riverside School. A site location plan Drawing No. 46009-001 is contained in Appendix III.

The scope of works consisted of a

- Desk Study;
- 15no. window sample probeholes to circa 5.0m bgl;
- 22no. trial pits;
- 9no. environmental monitoring installations;
- Chemical and geotechnical laboratory analysis;
- In-situ Geotechnical testing;
- Groundwater and gas monitoring; and,
- Interpretive report

1.2 Proposed Development

The client intends to construct a residential development of 94. low-rise residential dwellings with private gardens, driveways, roads and infrastructure. A preliminary proposed development plan (46009-002) is attached in Appendix III.

1.3 Objectives

The objectives of the geo-environmental investigation are to:

- Review historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Desk Study in line with Environment Agency (EA) document Model Procedures for the Management of Contaminated Land (Contaminated Land Report 11 (CLR11));
- Undertake a preliminary stage of sampling and analysis to provide an overview of environmental issues identified;
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors;
- Assess the geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs;
- Provide an assessment of the soakage of the underlying soils to assist in the design of infiltration based SuDS; and,
- Provide recommendations regarding future works required.

1.4 Sources of Information

Background information was sought from the following sources:

- Groundsure Database Search;
- Historical mapping dated 1851 to 2014. A selection of historical maps are reproduced in Appendix V;
- On-line planning records held by Bury Metropolitan Borough Council (BMBC);
- Consultations with representatives of BMBC;
- Environment Agency Groundwater Vulnerability Map (www.environment-agency.gov.uk/wiyby);
- Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007); and,
- British Geological Survey Map (Sheet 085, 1:50,000 Manchester, Solid & Drift edition).
- British Geological Survey Map (Lancashire Sheet XCV N.E., 1:10,560, 1910 Edition); and,
- Coal Authority Mining Report and Abandonment Plans.

1.5 Risk Classification

REC Ltd has utilised the available data to classify the site on the basis of its likely contaminated land liability and potential for geotechnical constraints in relation to the property development. The risk classification definitions are summarised below:

Risk	Definition
Low	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property.
Low-Moderate	There are unlikely to be significant contaminated land liabilities/geotechnical constraints associated with the property with regard to the proposed use. However, minor issues may require further consideration in the event of a future redevelopment of the site etc.
Moderate	Some potential contaminated land liabilities/geotechnical constraints are likely to affect the property as a result of historical and/or current activities. The risks identified are unlikely to pose an immediate significant issue but the purchaser/developer may wish to make further enquiries of the vendor or undertake further environmental improvements. Redevelopment of the site will likely require further site investigation.
Moderate-High	Some potentially significant contaminated land liabilities/geotechnical constraints have been identified at the property that requires further assessment including intrusive ground investigations.
High	Significant potential contaminated land liabilities/geotechnical constraints have been identified at the property. Further assessment including intrusive ground investigation will be required to determine to level of risk and associated liability.

1.6 Limitations

The limitations of this report are presented in Appendix I.

2.0 SITE SETTING

2.1 Site Details

Site Address	Former Riverside School, School Street, Radcliffe, M26 3BP
National Grid Reference	N378060,E407141
Site Area	2.35Ha

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location map (46002-001) is presented in Appendix III.

2.2 Current Site Use

Site Walkover Brief

A site walkover was undertaken on 18rd March 2015 prior to commencing the intrusive investigation works. The following site description comprises the site's current layout / features based on the REC Engineer's observations at the time of the site walkover. The walkover is primarily used to identify potential sources of soil and water contamination present at the site. The walkover is not a professional assessment of any potential future remedial, demolition or decommissioning works required and advice on such matters should be sought by the appropriate specialist contractors.

A Site Features Plan is located in Appendix III as Drawing No. 46009-003 and a selection of site photographs our presented in Appendix IV.

Site Description

The subject site is a rectangular shaped parcel of land. The former school building has been demolished to slab level and the site now comprises remnant floor slabs and foundations alongside asphalted areas of former car parks and play areas alongside overgrown areas of former soft landscaping. Approximately 60-70% of the site is unmaintained grass. Nominal fly tipping has occurred within the site.

The site boundaries comprise a mixture of metal fencing, brick dwarf wall and brick pier on the eastern and southern boundary. A 2.5m high mesh fence forms the northern and western site boundaries.

Electricity substation is present adjacent to the east and south west site boundaries. A single storey brick/slate roof unit (approximately 285 sq m) is present in the south east of the site. Mature trees are present both within the site and adjacent to the south western and eastern boundaries.

Hazardous Materials Storage

No above ground storage tanks (AST) or Underground Storage Tanks (USTs) were observed at the site.

Polychlorinated Biphenyls (PCBs)

Electricity substations are present adjacent to the east site boundary and the south west site

boundary.

Waste Storage

No potentially hazardous waste streams are generated at the property.

Asbestos Containing Materials (ACMs)

Potential ACMs were observed at the surface during the site walkover and comprised ACM corrugated roofing sheets.

2.3 Surrounding Area

The surrounding land uses are summarised below:

Direction	Land Use
North	Radcliffe Building Supplies Ltd.
East	Residential terraced housing.
South	Residential land and recreational land use with areas of undeveloped land.
West	Former school grounds for Millwood SEN School.

3.0 SITE HISTORY

3.1 On-Site Historical Development

A review of historical mapping pertinent to the site is summarised in Table 3.1 below. In addition, historical site features are presented on Drawing No 46009-004 in Appendix III.

Table 3.1 Summary of Potentially Contaminative Historical Land Uses

Map Edition	Historical Land Use
1893	Subject area forms part of a larger recreational ground labelled Peel Park Grounds.
1909	A rectangular-shaped building is located to the north of the site. The south east boundary has been separated into five separate areas.
1929	A small building is located to the south west. Approximately twenty four small buildings are located across the north of the site, the majority of which are located along the north east boundary.
1937	A large school building now occupies the centre of the site with a smaller building located to the south east and a small building to the north east in the location of the current electrical sub-station.
1929	Eight small buildings are located to the north of the site. The school is now labelled as Radcliffe County Secondary School with two buildings located directly to the east of the school buildings. The building to the south east is now labelled as School Clinic. The building to the north east is now labelled as El. Sub station.
1975	An additional building has been added to the south east of the main school building. An extension has been added to the main school building to the north west. The eight small buildings to the north are no longer present, instead exists two buildings to the north and north west. Two small buildings are now located within the school building's courtyard.
1985	An additional building is located to the north east. The latest building to the south east has been extended.
1989	Two of the buildings to the east of the main school building are no longer present.
1995	The building to the north west is no longer present.
2014	The only building shown on site is located to the south east.

3.2 Off-Site Historical Development

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250m radius of the site is summarised below in Table 3.2.

Table 3.2 Summary of Potentially Contaminative Off-Site Historical Land Uses

Surrounding Feature	Distance	Dates	Direction
Coal Pit *Then* residential area surrounding Ulundi Street	Adjacent to site	Pre 1851 Pre 1891 to present	East
Corporation Highway Depot (with works circa 1989) Then Radcliffe Building Supplies	Adjacent to site	Pre 1956 to pre 1995 Pre 1995 to present	North

Surrounding Feature	Distance	Dates	Direction
Atlas works (iron), Canal Mill and chimney (cotton), Union Mill (cotton) Holly Bank Mills and chimney (cotton weaving and dying), with gasometer, chimney and tanks; and Spider Mill (becoming Agriculture machinery works) with chimney. Atlas Leather works, Canal Mill and Holly Bank Mill (with sub station) *Then* New Fairfield Works and Holly Bank Mills becoming works.	100m	Pre 1893 to pre 1937 Pre 1937 to pre 1975 Pre 1975 to present	North West
Cotton Mill *Then* Windley Works (die casting) and sub station *Then* Works - unspecified	100m	Pre 1893 to pre 1937 Pre 1937 to pre 1975 Pre 1975 to present	East
Reservoir *Then* Engineering works (Land) *Then* Government Office (Land)	110m	Pre 1893 to pre 1977 Pre 1977 to pre 1988 Pre 1988 to present	South
Railway *Then* Dismantled *Then* Redeveloped – various residential and commercial land uses	125m	Pre 1851 to pre 1977 Pre 1977 to pre 1988 Pre 1988 to present	South east
Britannia Mill (smallware & drillers becoming cloth finishing) with associated adjacent tanks *Then* Residential properties	160-240m	Pre 1893 to pre 2002 Pre 2002 to present	North east
Green Lane Colliery (disused circa 1909), Allen's Green Colliery, (Old) Shaft, and sluice *Then* Allen's Green	200m	Pre 1893 Pre 1929	South west
Shaft (ventilating shaft) *Then* Engineering works	200m	Pre 1893 Pre 1956 to present	South
Abden St Mill Cordage *Then* Victoria Works (cotton) *Then* Victoria Mills (Kitchen and bathrooms)	200m	Pre 1929 to pre 1956 Pre 1956 to pre 1975 Pre 1975 to present	North east
Dye Works *Then* Dingle Vale Works *Then* Unspecified (currently foam manufacturers)	225m	Pre 1851 to pre 1908 Pre 1908 to pre 1965 Pre 1965 to present	South west

3.3 Planning History

REC has undertaken a review of on-line planning records held by Bury Metropolitan Borough Council and the following environmentally pertinent information has been obtained:

52038. November 2009 | Full planning for construction of a new primary school for children with special educational needs together with the construction of associated parking and external play areas; outline proposals to develop the remaining high school site for housing. Radcliffe High school, School Street. Reference 53401 in November 2010 was an application for non-material amendment following grant of planning permission 52038 to provide: 1. An enclosed garage area, 2. Amended canopy design, and 3. Addition of a door. Millwood SEN School, School Street, Radcliffe, Manchester, M26 3BP.

4.0 ENVIRONMENTAL SETTING

4.1 Geology & Hydrogeology

The British Geological Survey (BGS) map for the site, (Sheet 085, 1:50,000, Manchester, Solid & Drift edition) indicates that the site is underlain by the following geological sequence:

Geological Unit	Classification	Description	Aquifer Classification
Superficial	Devensian Till	Diamicton	Unproductive
Bedrock	Pennine Middle Coal Measures Formation	Mudstone, Siltstone, Sandstone and Coal Seams	Secondary A

The Groundsure report indicates there are no groundwater abstractions within 1.0km radius of the site. There are no potable groundwater abstraction points within 2km of the subject area. There are no Source Protection Zones within 500m of the site.

The Groundwater Vulnerability mapping shows that the site has been preliminarily classified as having a high leaching potential, however this has been provided as a conservative assessment due to being located in an urban environment.

Based on the local topography and location of surface watercourses it is considered likely that shallow groundwater, if present, will flow in a westerly direction towards the Manchester Bolton and Bury Canal 60m to the west or towards the River Irwell 300m south.

4.2 Geotechnical Data

Geotechnical Data presented within the Groundsure report identifies the following ground conditions:

Hazard	Designation
Shrink-Swell Clay	Very Low
Landslides	Very Low
Ground Dissolution	Negligible
Compressible Ground	Negligible
Collapsible Deposits	Very Low
Running Sand	Very Low

4.3 Coal Mining

The Coal Authority Report indicates that the site is in the likely zone of influence from 6 seams of coal at depths of between 50m and 450m, last worked in 1900. The site is also in an area where the Coal Authority considers that there is coal at or close to the surface which may have been worked at some time in the past.

The BGS 1:10,560 geological map (1910 Edition) records the Top Five Quarters seam outcropping adjacent to the northwest site boundary and dipping shallowly at 7˚ beneath the site and the Stonedelph Mine is inferred to subcrop beneath the site. 3No. shafts are recorded in close proximity

to the site.

The Coal Authority interactive map indicates that the site is located in a development high risk area and as such a Coal Mining Risk Assessment (CMRA) Report is required for the site. The REC Ltd CMRA report for the site (reference: 46009p2r0) should be viewed in conjunction with this report.

4.4 Hydrology

Surface water features in the vicinity of the subject site are as follows:

Surface Water Feature	Quality*	Distance (m)	Direction
Manchester Bolton and Bury Canal	Moderate	56m	North East
River Irwell	Moderate	287m	South

*Chemical water quality as classified under the EA's General Quality Assessment (GQA) Scheme

The site is not located within a currently defined flood risk zone.

4.5 Radon Risk Potential

The online UK Radon interactive map indicates that the site is situated in an area where between 1-3% of homes are above the Action Level.

4.6 Industrial Land Uses

The site is situated within a mixed residential, commercial and industrial area and the Trade Directory has the twenty nine entries within 250m of the site including an electrical substation on the site itself. The closest entry off site relates to a distribution and haulage firm located 33m south of the site. The majority of entries are listed as Industrial features, infrastructure and facilities, consumer products and transport storage and delivery.

4.7 Sensitive Land Uses

The closest residential properties are located adjacent to the subject site to the east and beyond School Street to the south. Pendle Nursing Home is located approximately 111m to the south east of the site. No other environmentally sensitive land uses have been identified within close proximity to the subject site.

4.8 Site Sensitivity Assessment

The site is considered to be located within a **low to moderate** sensitivity setting due to the following reasons:

- Residential properties are located in close proximity;
- The nearest surface water course in potential hydraulic continuity with the site (River Irwell) is located over 280m south; and,
- The underlying drift geology comprises low permeability strata.

4.9 Geotechnical Assessment

The following potential geotechnical constraints have been identified:

- Mature trees are present on the site, therefore an assessment of the underlying clay is required for shrink and swell susceptibility;
- Existing floor slabs,relict foundations and potential for backfilled basements associated with the former building may exists on site; and,
- The site is located in a Coal Authority development high risk area and as such a CMRA report (REC report number: 46029p2r0) and further site investigation is required.

5.0 CONSULTATIONS

5.1 Local Authority Contaminated Land Officer

Rebecca Jones (19/03/2015) from BMBC was consulted with regards to any known issues at the site or in close vicinity.

- Railway sidings to the south within 250m zone were deemed as 'low risk' as natural clays were used for the embankment.
- Smallholdings, possible allotments were identified to the north of the site prior to the school.
- Land to the east land beyond the 250m zone identified infilled land is 'low risk'.
- The site is not registered as contaminated land regime under the Part 2A of the Environmental protection act.
- Historical maps identify a coal pit on Ulundi Street circa 1848 and nothing after.

5.2 Local Authority Building Control Officer

The Building Control Officer at the BMBC was contacted via e-mail but did not respond prior to issue of this report. Should a response be forthcoming with pertinent information, REC will provide an addendum report.

5.3 Landfill Sites and Waste Treatment Sites

Three historical landfill sites have been identified within 250m of the subject site. The nearest is located approximately 184m to the south of the subject site. The landfill was registered to Land south west of Sion Street and Bradbury Street, Radcliffe and the license is reported to have been surrendered in 1991. Three records of waste treatment transfer or disposal sites are listed within 250m of the site. The nearest is located approximately 133m south west of the site and accepted scrap circa 1988.

5.4 Regulatory Database

The following information has been obtained from a commercially available environmental database. The summary table only includes records not otherwise detailed in the report.

Table 5.1 Summary of Groundsure Data

	0-249m	250-500m	Details
Contaminated Land Register Entries and Notices	0	0	
Authorised industrial processes (IPC/IPPC/LAPPC).	0	0	
Fuel Stations Entries	0	2	Asda, 278m - SE (open). Asda 495m SE (obsolete).
Licensed radioactive substances	0	0	
Enforcements, prohibitions or prosecutions	2	1	F.A.M Engineering: Part B Waste Oil Burner, 126m W, current Strebor diecasting: Part B Non ferrous Alloys process, 129m S, historical Asda Radcliffe: Part B Petrol Station, 351m SE, current.
Discharge Consents	1	20	Sewer Discharges, nearest is 197m north.
Pollution Incidents	1	4	Crude Sewage, 205m NW Category 2 (significant) Unidentified oil, 351m SW Category 3 (Minor)

	0-249m	250-500m	Details
			Crude Sewage, 379 NE Category 3 (Minor) Other contaminated water, 453m SE Category 2 (significant) Dyes and inks, 473m E Category 3 (Minor)
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	
Control of Major Accident Hazard (COMAH) sites	0	0	

6.0 INITIAL CONCEPTUAL SITE MODEL (CSM)

6.1 Initial CSM

In accordance with Environment Agency, CLR 11 (2004) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), REC Ltd have developed an initial CSM to identify potential contamination sources, migration pathways and receptors within the study area.

6.2 Contaminant Sources

On-site Potential Sources

A number of potential Made Ground deposits have been identified on the site as follows;

- Ash and made ground associated with the former allotments/smallholdings to the north of the site; and,
- Made Ground associated with the construction of the former School buildings and their subsequent demolition.

Made Ground may contain toxic heavy metals, sulphates, PAHs, asbestos and hydrocarbons, along with the potential for the generation of hazardous ground gases such as methane and carbon dioxide. With consideration given to these sources, the potential for on-site contamination is considered to be **low** to **moderate.**

It is considered that the former school building may have used an oil-fired boiler and as such a heating oil storage tank may have been located on-site which may give rise to hydrocarbon contamination. BMBC was contacted to provide layout plans of the former school; however, no plans could be obtained and no evidence of any former tank was observed during the post demolition site walkover.

Off-site Potential Sources

Off-site sources of contamination are relevant to the site if pathways for migration of contaminants exist (see discussion of pathways below). Historically, the surrounding land use has been a mixture of residential and industrial activities.

Potential off-site sources include;

- Electricity sub stations on the east and south west site boundaries;
- Historical landfill site located approximately 184m to the south of the subject site, however due to the prevailing topography this source is not thought to pose a significant risk to the site;
- Waste treatment transfer or disposal site located approximately 133m south west of the site and accepted scrap circa 1988;
- Historical railway located approximately 125m to the south east of the site however, due to its subsequent redevelopment there is limited potential for significant contamination;
- Historical coal mining adjacent to the site; and
- Historic works with associated chimneys from 100m to the north. There is limited potential for the migration of potential contamination.

The overall risk associated with off-site sources is **low.**

6.3 Potential Pathways

Receptors may be potentially at risk from the identified potential sources of contamination via the following pathways:

- Migration of mobile contaminants on or off site via services, sewers and manmade conduits;
- Direct contact, ingestion and inhalation of contaminants on site;
- Migration of contaminated dusts during earthworks;
- Migration of mobile contaminants into groundwater and transport into surface waters;
- Migration of hazardous gases; and,
- Uptake of toxins/phytotoxins by plants.

6.4 Potential Receptors

Human Health

- Site investigation and construction workers during the redevelopment of the site from hazardous short term exposure;
- Future users of the site and buildings; and,
- Users of adjacent areas due to off-site migration of gases, vapours or contaminated dust.

Controlled Waters

Groundwater

The site has been shown to be underlain by Devensian Till deposits comprising interbedded Clay and granular deposits. It is considered that the superficial deposits may provide protection to the underlying solid geology depending on geology present. The underlying Pennine Coal Measures Formation (solid geology) is considered by the EA to be a secondary A aquifer. With consideration to the above points, it is considered that the risk of contamination to the underlying groundwater is **low.**

Surface Waters

Manchester Bolton and Bury Canal and River Irwell are located 56m to the west and 287m to the south respectively. The canal is not considered a potential surface water receptor due to its engineered 'containment' properties and therefore,not in hydraulic continuity with the local groundwater.

Pathways of granular material which may permit the migration of mobile contaminants into nearby surface water features may be present although they are unlikely to be laterally continuous due to the presence of significant cohesive deposits beneath the site. With consideration for the presence of cohesive materials and potential for a number of sources present at the site and the proximity of surface water features, it is considered that the risk of contamination to surface water receptors is **low**.

Ecological Sites / Ecosystems

No ecological receptors are located within 500m of the site and therefore, it is considered that the risk to ecosystems is **low**.

Buildings, Foundations and Services

Future redevelopment of the site will include the construction of new foundations. Elevated sulphate concentrations could affect the integrity of buried concrete structures. Services may be affected by the presence of aggressive contaminants which may corrode or penetrate services. Water supply pipes can be susceptible to penetration by hydrocarbons which may then affect the quality of the water supply.

7.0 SITE INVESTIGATION

7.1 Desk Study Information

Potential contamination sources have been identified from the desk study and these are listed in Table 7.1 below:

Table 7.1 Summary of Potential Contaminant Sources

Potential Source	Potential Contaminants	Potential Impact
Made Ground across the site	Asbestos, Metals, PAHs, hydrocarbons, sulphate and ground gases	Human health, controlled waters and buildings.
Electricity substations on east and south west site boundaries	Polychlorinated Biphenyls (PCBs)	Human health
Oil storage tank(s) (former boiler room unknown location)	Hydrocarbons	Human health and controlled waters
Coal Measures	Ground gases	Human health and buildings

7.2 Site Investigation

A ground investigation has been designed based on the findings of the desk study with exploratory holes advanced to target specific potential contaminant sources summarised in Table 7.1. In addition, exploratory holes have also been advanced to provide information on baseline conditions across the site. The investigation has also been used to collect geotechnical information to assist in the design and construction of the development.

Exploratory fieldwork was completed between the 18th March 2015 and the 24th March 2015. The works are summarised in Table 7.2.

Table 7.2 Summary of Fieldwork

Location Hole	Potential Source/Rationale	Type	Maximum Depth (m bgl)	Monitoring Wells Response Zone
WS101	Baseline conditions / Made Ground	Window Sample	5.45	1.0 - 3.0
WS102	Baseline conditions / Made Ground		5.45	N/A
WS103	Baseline conditions / Made Ground		5.45	0.5 - 1.0
WS104	Adjacent substation / Made Ground/ Baseline conditions		5.45	1.0 – 3.0
WS105	Baseline conditions / Made Ground		5.45	N/A
WS106	Adjacent tank / Baseline conditions / Made Ground		4.45	1.0 – 3.0
WS107	Baseline conditions / Made Ground, Historic features		5.45	0.5 – 1.0
WS108	Baseline conditions / Made Ground		3.45	N/A
WS109-A	Baseline conditions / Made Ground		1.45	N/A
WS109-B	Baseline conditions / Made Ground		3.45	N/A
WS110	Baseline conditions / Made		4.45	0.50 – 1.0

Location Hole	Potential Source/Rationale	Type	Maximum Depth (m bgl)	Monitoring Wells Response Zone
	Ground			
WS111	Adjacent substation / Made Ground/ Baseline conditions		4.45	0.50 – 1.0
WS112	Baseline conditions / Made Ground		3.45	N/A
WS113	Baseline conditions / Made Ground		5.45	1.0 – 4.0
WS114	Baseline conditions / Made Ground		3.45	0.5- 1.5
WS115	Baseline conditions / Made Ground		3.45	N/A
TP101	Baseline conditions / Made Ground, Relict structures		2.50	N/A
TP102	Baseline conditions / Made Ground, Relict structures		2.50	N/A
TP103	Baseline conditions / Made Ground, Relict structures		3.20	N/A
TP104	Baseline conditions / Made Ground, Relict structures		3.00	N/A
TP105-A	Baseline conditions / Made Ground, Relict structures		0.50	N/A
TP105-B	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP106	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP107	Adjacent tank / Baseline conditions / Made Ground, Relict structures		2.5	N/A
TP108	Baseline conditions / Made Ground, Relict structures		1.5	N/A
TP109	Adjacent substation / Baseline conditions / Made Ground, Relict structures		2.5	N/A
TP110-A	Baseline conditions / Made Ground, Relict structures	Trial Pit	0.20	N/A
TP110-B	Baseline conditions / Made Ground, Relict structures		1.0	N/A
TP111	Baseline conditions / Made Ground, Relict structures		2.0	N/A
TP112	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP113	Baseline conditions / Made Ground, Relict structures		2.5	N/A
TP114	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP115	Baseline conditions / Made Ground, Relict structures		2.5	N/A
TP116	Baseline conditions / Made Ground, Relict structures		2.0	N/A
TP117	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP118	Baseline conditions / Made Ground, Relict structures		2.5	N/A
TP119	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP120	Baseline conditions / Made Ground, Relict structures		3.0	N/A
TP121	Baseline conditions / Made		2.5	N/A

Location Hole	Potential Source/Rationale	Type	Maximum Depth (m bgl)	Monitoring Wells Response Zone
	Ground, Relict structures			
TP122	Baseline conditions / Made Ground, Relict structures		3.0	N/A

Notes
m bgl – metres below ground level.

The window sample probeholes were designed to provide geotechnical information and confirm the findings of the Initial Conceptual Site Model (ICSM).

The trial pits were dug to retrieve environmental and geotechnical samples and establish relict foundations, spatially distributed to offer the maximum site coverage. The sampling locations are illustrated in Drawing No 46009-006. The exploratory hole locations havealso been overlaid on the historical features plan and is presented as Drawing No. 46029-007 (Appendix III). The ground conditions encountered and details of monitoring well response zones are indicated on the logs which are provided in Appendix VI.

Return visits were made to monitor installations for groundwater level and gas concentrations. In addition, selected wells were purged and samples of groundwater recovered for chemical analysis.

Soil samples destined for chemical analysis were collected at regular intervals in appropriate sampling containers. All samples were subsequently stored in cooled boxes prior to submission to analytical laboratory. The samples were collected using appropriate PPE and sampling equipment that was cleaned at each sampling location. A detailed copy of REC Ltd sampling methodology, QA procedures and laboratory chain of custody forms can be provided upon request.
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7.3 In-Situ Testing

7.3.1 Standard Penetration Tests

In-situ geotechnical testing was conducted using the Standard Penetration Test at 1m intervals within the window sample probeholes. The results are shown in the exploratory hole logs in Appendix VI, presented in Table 8.2 and discussed in Sections 8 and 10.

7.3.2 Soil Infiltration In-Situ Testing

In-situ variable head permeability tests were undertaken within three monitoring well installations (WS106, WS110 and WS114). The results of the in-situ testing are presented in Appendix IX and discussed in Section 8.

7.3.3 Dynamic Cone Penetrometer

In-situ California Bearing Ratio (CBR) tests were undertaken at selected locations using a Transport Research Laboratory Dynamic Cone Penetromer (DCP). The results are discussed in Section 10 and test certificates are presented in Appendix IX.

7.4 Laboratory Analysis

7.4.1 Soil Chemical Analysis

Selected soil samples were submitted for a range of chemical analysis comprising metals, pH, total sulphate, water soluble sulphate (2:1 extract), sulphide, cyanide, phenols, total and speciated poly-aromatic hydrocarbons (PAHs), asbestos, speciated total petroleum hydrocarbons (TPH) and PCBs.

Scientific Analysis Laboratories (SAL) Ltd of Manchester undertook the analytical work, the results of which are included in Appendix VII and discussed in Section 9.

7.4.2 Water Chemical Analysis

Selected water samples were submitted for a range of chemical analysis comprising, metals, pH, total sulphate, water soluble sulphate (2:1 extract), sulphide, cyanide, phenols, total and speciated poly-aromatic hydrocarbons (PAHs), asbestos and speciated total petroleum hydrocarbons (TPH).

SAL Ltd of Manchester undertook the analytical work, the results of which are included in Appendix VII and discussed in Section 9.

7.4.3 Geotechnical Laboratory Analysis

Selected soil samples were submitted to Professional Soil Laboratories (PSL) Ltd of Doncaster, where the following geotechnical tests were undertaken:

- 4 No. Particle Size Distributions (Coarse graded).
- 6 No. Atterberg Limits Determinations;

The results of the geotechnical analysis are presented in Appendix VIII.

7.5 Gas and Groundwater Monitoring

Following the intrusive phase of site works, gas and groundwater monitoring was undertaken from the 31st March 2015. It is proposed to undertake a total of six monitoring visits within a three month period; however, to date only one monitoring visit has been undertaken.

Gas flow was measured, followed by the sampling of gas for determining the concentrations of methane (CH_4), carbon dioxide (CO_2) and Oxygen (O_2) using an ATEX and MCERTS accredited and calibrated hand-held gas analyser (GFM 436). Gas measurements were recorded for a minimum of sixty seconds at each location, at which point the maximum concentration of CH_4 and CO_2 together with the lowest concentration of O_2 were recorded.

Groundwater monitoring was undertaken using an electronic dip meter.

Ground gas and groundwater results are discussed in Sections 8 and 10.

8.0 GROUND AND GROUNDWATER CONDITIONS

8.1 Ground Conditions

8.1.1 Summary of Ground Conditions

The ground investigation generally confirms the published geology and identifies the strata set out in Table 8.1 below:

Table 8.1 Summary of Strata

Strata	Typical Description	Min Depth to Top of Strata (m)	Max Depth to Top of Strata (m)	Max Thickness (m)
Surface hardstanding	Asphalt	0.00	0.0	0.25
Made Ground	Blackish brown slightly gravelly slightly clayey **SAND**. Gravel of sub angular to sub rounded brick, concrete, some wood, plastic,metal, slag and ash/ clinker.	0.00	0.25	2.00
	Soft black slightly gravelly slightly sandy **CLAY**. Gravel of sub angular to sub rounded brick, concrete some wood, plastic and metal and ash clinker.			
Made Ground Demolition rubble/relict foundations	Blackish red and white slightly sandy **GRAVEL**. Gravel of brick and concrete. Boulders and cobbles of brick and concrete, relict foundations/walls.	0.00	0.4	2.00
Glacial Till	Brownish orange slightly sandy slightly gravelly **CLAY**. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone.	0.5	5.45	4.95
	Yellowish brown slightly clayey slightly gravelly **SAND**. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone.			
	Brown silty **SAND**			

8.1.2 Topsoil

Topsoil was encountered in the northern and central section of the site and in the south eastern part of the site. Topsoil across the site had an average thickness of 0.3m and contained visual evidence of brick and concrete. The Topsoil is considered physically unsuitable for reuse in the development.

8.1.3 Made Ground

Made Ground was encountered across the entire site. The northwest, the east and the south east of the site were surfaced in asphalt with an average thickness of 0.10m. Made ground was encountered beneath the majority of the site beneath the grassed areas between depths of 0.0m and 2.0m bgl.

Relict foundations and obstructions in the form of concrete slabs, basement floor slabs and brick walls were recorded between ground level and 2.0m bgl beneath the footprint of the former school building.

Limited visual contamination in the form of ash within the Made Ground deposits was noted in several locations across the site, particularly to the south east, grassed area. This was particularly prevalent in the south of the site. Furthermore, bonded cobbles of slag were recorded at depth. Several locations (TP103, TP122 and WS101) were identified as having some olfactory evidence of limited contamination of staining and odour of hydrocarbons.

8.1.4 Drift Deposits

Glacial till was encountered at depths between 0.2m and 1.5m bgl and was proven to extend to a depth of at least 5.45m bgl. The maximum thickness of glacial till was not proven during the investigation. The glacial deposits comprised firm to stiff Clay which was generally interbedded with Sands and also clayey gravelly Sands with cobbles of mudstone and lenses of stiff Clay and some silty Sands.

8.1.5 Solid Geology

Solid geology (Pennine Middle Coal Measures) was not encountered during this investigation.

8.1.6 Soil Consistency

Standard Penetration Test results shown in Table 8.2, overleaf indicates that the glacial Clay is generally medium to high strength with an increase in strength with depth. Interbedded sand lenses are generally loose to medium dense in consistency.

8.1.7 Side Stability and Ease of Excavation

The exploratory trial pits were excavated with a JCB 3CX to depths of up to 3.20 and the sides of the trial pit excavations appeared to be stable during excavation with the exception of TP101 , TP104, TP105-B,TP106 and TP116 which collapsed where groundwater and running sand was encountered.

The presence of occasional concrete slabs and brick footings on and within the near surface soils in the north and south east of the site meant that in certain places excavation was slow through the Made Ground and in others the ground could not be penetrated. The former basement floor slab was found intact at depths of 1.0m and 2.0m bgl with Made Ground placed on top. The natural cohesive stratum was excavated with relative ease, however, the natural granular materials were often found to be saturated and therefore, running sands were prevalent throughout the site.

Table 8.2 Standard/Cone Penetration Test Results

Boreholes	Depth (m bgl) (i)	Material Field Description	CPT/SPT "N" Value	Corrected "N" Value $(N_1)_{60}$	Terzaghi & Peck Relative Density (Sands)	Eurocode Soil strength	Consistency (BS5930)	Terzaghi & Peck Approximate Undrained Shear Strength (kN/m^2)
WS101	1	Glacial SAND	3	3.02	Loose	N/A	N/A	N/A
	2		11	10.05	Medium Dense	N/A	N/A	N/A
	3		16	13.91	Medium Dense	N/A	N/A	N/A
	4	Glacial CLAY	31	26.19	N/A	High strength	Very Stiff	130.95
	5		23	19.08	N/A	High strength	Very Stiff	95.41
WS102	1	MG clay	10	10.08	N/A	Medium strength	Stiff	50.41
	2	Glacial SAND	14	12.79	Medium Dense	N/A	N/A	N/A
	3		18	15.65	Medium Dense	N/A	N/A	N/A
	4	Glacial CLAY	17	14.36	N/A	Medium strength	Stiff	71.81
	5		31	25.72	N/A	High strength	Stiff	128.59
WS103	1	Glacial SAND	11	11.09	Medium Dense	N/A	N/A	N/A
	2		8	7.31	Loose	N/A	N/A	N/A
	3		8	6.96	Loose	N/A	N/A	N/A
	4		20	16.90	Medium Dense	N/A	N/A	N/A
	5	Glacial SAND	19	15.76	Medium Dense	N/A	N/A	N/A
WS104	1	Glacial SAND	9	9.07	Medium Dense	N/A	N/A	N/A
	2		12	10.96	Medium Dense	N/A	N/A	N/A
	3		26	22.61	Medium Dense	N/A	N/A	N/A
	4		13	10.98	Medium Dense	N/A	N/A	N/A
	5		29	24.06	Medium Dense	N/A	N/A	N/A
WS105	1	Glacial SAND	12	12.10	Medium Dense	N/A	N/A	N/A
	2		7	6.39	Loose	N/A	N/A	N/A
	3		17	14.78	Medium Dense	N/A	N/A	N/A
	4	Glacial CLAY	10	8.45	N/A	Medium strength	Stiff	42.24
	5	Glacial SAND	50	41.48	Dense	N/A	N/A	N/A

Boreholes	Depth (m bgl) (i)	Material Field Description	CPT/SPT "N" Value	Corrected "N" Value $(N_1)_{60}$	Terzaghi & Peck Relative Density (Sands)	Eurocode Soil strength	Consistency (BS5930)	Terzaghi & Peck Approximate Undrained Shear Strength (kN/m^2)
WS106	1	MG: Clay	14	14.11	N/A	Medium strength	Stiff	70.57
	2	Glacial SAND	9	8.22	Medium Dense	N/A	N/A	N/A
	3		8	6.96	Loose	N/A	N/A	N/A
	4		50	42.24	Very Dense	N/A	N/A	N/A
WS107	1	Glacial SAND	14	14.11	Medium Dense	N/A	N/A	N/A
	2		15	13.70	Medium Dense	N/A	N/A	N/A
	3	Glacial CLAY	21	18.26	N/A	High strength	Very Stiff	91.31
	4	Glacial SAND	30	25.35	Dense	N/A	N/A	N/A
	5		38	31.53	Dense	N/A	N/A	N/A
WS108	1	MG: Sand	6	6.05	Loose	N/A	N/A	N/A
	2	Glacial CLAY	15	13.70	N/A	Medium strength	Stiff	68.52
	3		50	43.48	N/A	Very high strength	Very Stiff	217.41
WS109-A	1	MG: Gravel	34	34.28	Dense	N/A	N/A	N/A
WS109-B	1	MG: Sand and gravel	4	4.03	Loose	N/A	N/A	N/A
	2	Glacial SAND	12	10.96	Medium Dense	N/A	N/A	N/A
	3	Glacial CLAY	50	43.48	N/A	High strength	Very Stiff	217.41
WS110	1	Glacial CLAY	1	1.01	N/A	Extremely low strength	Very Soft	5.04
	2		12	10.96	N/A	Medium strength	Stiff	54.81
	3		18	15.65	N/A	High strength	Very Stiff	78.27
	4		50	42.24	N/A	Very high strength	Very Stiff	211.21
WS111	1	Glacial CLAY	6	6.05	N/A	Low strength	Firm	30.24
	2		12	10.96	N/A	Medium strength	Stiff	54.81
	3		11	9.57	N/A	Medium strength	Stiff	47.83
	4		50	42.24	N/A	Very high strength	Very stiff	211.21

Boreholes	Depth (m bgl) (i)	Material Field Description	CPT/SPT "N" Value	Corrected "N" Value $(N_1)_{60}$	Terzaghi & Peck Relative Density (Sands)	Eurocode Soil strength	Consistency (BS5930)	Terzaghi & Peck Approximate Undrained Shear Strength (kN/m^2)
WS112	1	Glacial CLAY	4	4.03	N/A	Low strength	Firm	20.16
	2		11	10.05	N/A	Medium strength	Stiff	50.24
	3		50	43.48	N/A	Very high strength	Very stiff	217.41
WS113	1	Glacial CLAY	9	9.07	N/A	Medium strength	Stiff	45.37
	2		11	10.05	N/A	Medium strength	Stiff	50.24
	3	Glacial SAND	13	11.31	Medium Dense	N/A	N/A	N/A
	4	Glacial CLAY	24	20.28	N/A	High strength	Very Stiff	101.38
	5		50	41.48	N/A	Very high strength	Very Stiff	207.41
WS114	1	MG: Sand	6	6.05	Loose	N/A	N/A	N/A
	2	Glacial CLAY	13	11.88	N/A	Medium strength	Stiff	63.95
	3		50	43.48	N/A	Very high strength	Very Stiff	217.41
WS115	1	Glacial CLAY	0	0.00	N/A	FALSE	FALSE	0.00
	2		13	11.88	N/A	Medium strength	Stiff	59.38
	3	Glacial SAND	50	43.48	Very Dense	N/A	N/A	N/A

8.1.8 Soil Infiltration

In-situ variable (falling) head permeability tests were undertaken within the monitoring well installations located in three probeholes (WS106, WS110 and WS114). Groundwater was noted to be at a depth of approximately 100mm above the base of WS110 and WS114 the wells and therefore the tests were undertaken in the unsaturated zone. As a result the data has been interpreted as soakaway tests rather than a permeability tests. Groundwater in WS106 was present at 1m (the top of the response zone) and therefore represents a false test. The results are presented in Table 8.3.

Table 8.3 Soil Infiltration Results

Location	Depth (m)	Material	Test No.	Soil Infiltration Rate (m/s)
WS106	1 to 3m	Sandy gravelly Clay	Test No.1	7.36E-03
WS110	0.05 to 1m	MG: Sandy gravelly Clay	Test No. 1	1.57E-03
WS114	0.05 to 1.5m	Interbedded Sands and Clays	Test No.1	4.17E-04

It is considered that a combination of the underlying natural low permeability Clay and encountered perched water across the site will preclude the use of soakaways for the disposal of surface water runoff at the site.

8.1.9 Soil Plasticity

The Atterberg Limits determinations, summarised in Table 8.4 below, show the clay to be predominantly of intermediate plasticity with a low to medium volume change potential.

Table 8.4 Summary of Plasticity Index Test Results

Location	Depth (m)	Natural Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Plasticity Index (%)	Percentage passing 425µm sieve (%)	Modified Plasticity Index
TP104	1.00	24	20	38	18	100	18
TP112	1.50	43	23	46	23	100	23
TP113	2.50	43	26	54	28	100	28
TP114	3.00	33	21	38	17	100	17
TP116	2.00	25	21	37	16	100	16
TP118	2.00	23	20	33	13	100	13

8.1.10 California Bearing Ratio

The California Bearing Ratio (CBR) for the soils was measured using in situ tests using a TRL probe. The result sheets are included in Appendix IX and the locations are shown on the exploratory hole location plan (46009-004) in Appendix III. CBR results have been averaged from the blow counts across the strata tested and any abnormally high blow counts ignored as these are likely to be from larger granular material and so represent anomalies.

The test sheets show that the derived CBR values are variable across the site and with depth and that within the upper 850mm from existing ground level results ranged from 4% to 28%. It is

recommended that plate loads tests are conducted once site levels are known to confirm road design parameters.

8.1.11 pH and Sulphate

The chemical analysis for pH and sulphate content contained in Appendix VII shows that the soils and groundwater at the site meet Design Sulfate Class DS-1 and ACEC Class AC-1. Consideration should be given to locally increasing the classes to DS-2 and AC-2 in the area of WS8 should the Made Ground here remain in-situ post-development.

Soil Concrete Design Parameters

Sample Type	No. of Samples	Parameter	Result Range	Outliers
Soil	15	Depth (m)	0.10 – 1.80	
Soil	15	pH	6.6 – 7.7	5.1 (TP3 0.80m)
Soil	15	SO4 (2:1) mg/l	<100 - 200	1300 (WS8 0.30m)
Groundwater	3	SO4 (mg/l)	21 - 100	
Groundwater	3	pH	7.5 – 7.8	

8.2 Groundwater Conditions

Groundwater strikes were encountered as within the granular stratum across the site, typically at depths ranging between 1.00m and 5.00m bgl. Owing to the confined nature of sand lenses, granular deposits would often exhibit properties of 'runniing sands'. The depth of the water strikes are shown on the exploratory hole records and summarised in Table 8.6 below:

Table 8.6 Summary Groundwater Strikes

Location	Depth to strike (m)	Inflow Rate
WS101	1.0	Moderate
WS101	2.0	Moderate
WS102	2.2	Moderate
WS102	4.0	Moderate
WS103	2.0	Moderate
WS103	3.0	Moderate
WS103	5.0	Moderate
WS104	2.0	Moderate
WS104	5.0	Moderate
WS105	2.1	Fast
WS105	4.0	Moderate
WS106	2.0	Moderate
WS106	3.5	Moderate
WS107	1.0	Moderate
WS107	2.0	Moderate
WS107	3.0	Moderate
WS107	4.0	Moderate
WS108	1.3	Moderate
WS108	2.0	Moderate
WS109-B	2.0	Moderate
WS110	1.0	Moderate
WS110	3.0	Moderate
WS111	3.5	Moderate

Location	Depth to strike (m)	Inflow Rate
WS112	2.0	Moderate
WS113	2.0	Moderate
WS113	3.0	Moderate
WS115	1.0	Moderate
WS115	2.0	Moderate
TP103	3.0	Moderate
TP105-B	3.0	Moderate
TP106	3.0	Moderate
TP107	3.0	Moderate
TP109	2.5	Fast
TP114	3.0	Slow
TP115	2.0	Slow
TP116	1.0	Moderate
TP116	1.5	Moderate
TP117	2.5	Moderate
TP118	2.0	Slow
TP119	2.0	Slow
TP120	3.0	Slow

Monitoring was undertaken using an electronic dip meter probe to record the depth to groundwater if present. Groundwater level monitoring has indicated an intermittent groundwater body exists underlying the site and appears to be perched groundwater lying within the Made Ground or with the underlying sandy clay/sands horizon. The groundwater levels recorded are summarised in Tables 8.7 overleaf. The groundwater at the site is considered to represent a series of perched water bodies at the Made Ground - Natural Ground interface and groundwater present within the natural Sand horizons.

8.3 Ground Gas

The initial results of the ground gas monitoring are presented in Table 8.7 overleaf. Six visits are scheduled over a three month period and the full results will be presented in an addendum report.

Table 8.7 Summary of ground gas and groundwater monitoring results

Well	Date	CH_4 Initial %v/v	CH_4 Steady %v/v	CH_4 GSV l/hr	CO_2 Initial %v/v	CO_2 Steady %v/v	CO_2 GSV l/hr	O_2 %v/v	Atmos(mb)	Atmos. Dynamic	Flow (l/hr)	Response Zone (mbgl)	Depth to Base (mbgl)	Depth to Water (mbgl)
WS101	31/03/2015	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	995	Falling	<0.1	1.0-3.0	1.805	0.654
WS103		0.1	0.1	0.0001	0.6	0.6	0.0006	19.7			<0.1	0.5-1.0	1.064	0.765
WS104		0.1	0.1	0.0001	0.1	0.1	0.0001	20.2			<0.1	1.0-3.0	1.864	0.715
WS106		0.1	0.1	0.0001	0.1	0.1	0.0001	19.8			<0.1	1.0-3.0	2.405	1.019
WS107		0.1	0.1	0.0001	0.2	0.2	0.0002	15.8			<0.1	0.5-1.0	1.095	0.665
WS110		0.1	0.1	0.0001	0.8	0.8	0.0008	18.9			<0.1	0.5-1.0	1.352	1.345
WS111		0.1	0.1	0.0001	0.7	0.3	0.0003	19.7			<0.1	0.5-1.0	1.115	0.571
WS113		0.1	0.1	0.0001	0.2	0.2	0.0002	19.7			<0.1	1.0-4.0	3.209	0.804
WS114		0.1	0.1	0.0001	3.5	3.5	0.0035	16.5			<0.1	0.5-1.5	1.291	1.134

9.0 TIER 1 QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

REC has undertaken a Tier II qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

9.1 Human Health Risk Assessment

At a Tier II stage, the long term (chronic) toxicity risk to human health is assessed by utilising appropriate and conservative generic assessment criteria (GAC) to determine whether there are actual or potential unacceptable risks at the site and if any viable pollutant linkages are present.

To undertake the Tier II assessment within the context of the development proposal, REC has determined that the most appropriate GAC values available will be those based upon a residential land use with the cultivation and ingestion of home-grown produce taken into account.

The following assessment, summarised below and overleaf in Table 9.1, has primarily adopted the S4UL (Suitable for Use Levels reference values published by LQM/CIEH in 2015, the S4ULs). Currently, no published GAC value is available for cyanide and therefore REC has utilised the Environmental Agency Contaminated Land Exposure Assessment Tool (CLEA v1.06) to derive the relevant GAC for this proposed land use. Due to the absence of a published lead GAC for direct use within the planning regime, the 2014 Defra C4SL (Category 4 Screening Level) has been used as this value is considered to incorporate the latest toxicological, bioaccessibility and exposure modelling research to date.

Table 9.1 Summary of Inorganic and Hydrocarbon Toxicity Assessment for a Residential End Use

Determinand	Units	GAC	GAC Source	n	[mc]	Location of exceedances	Primary Pathways	Assessment
Inorganics								
Arsenic	mg/kg	37	(i)	15	200	TP103 0.80m TP104 0.30m TP113 0.40m WS101 0.20m WS111 0.20m	1	**See Discussion**
Cadmium	mg/kg	11	(i)	15	<1	N/A	1, 2	No Further Action
Chromium (VI)	mg/kg	6	(i)	15	<1		1, 2, 3	
Lead	mg/kg	200	(iv)	15	500	TP104 0.30m TP113 0.40m TP117 0.40m WS101 0.20m WS111 0.20m	1, 2	**See Discussion**
Mercury [Inorganic]	mg/kg	40	(i)	15	<1	N/A	1, 2	No Further Action
Nickel	mg/kg	180	(i)	15	110		1	
Selenium	mg/kg	250	(i)	15	<3		1, 2	
Copper	mg/kg	2,400	(i)	15	270		1, 2	
Zinc	mg/kg	3,700	(i)	15	350		1, 2	
Cyanide [Total]	mg/kg	791	(v)	15	330		1	
Asbestos	-	D.	-	11	N.D.		3	
Organics – PAHs and Phenol								
Phenols	mg/kg	280	(ii)	15	<1	N/A	2	No Further Action
Naphthalene	mg/kg	2.3	(ii)	15	0.45		4	
Acenaphthylene	mg/kg	170	(ii)	15	0.13		2	
Acenaphthene	mg/kg	210	(ii)	15	1.3		2	
Fluorene	mg/kg	170	(ii)	15	0.99		2	
Phenanthrene	mg/kg	95	(ii)	15	7.1		2	
Anthracene	mg/kg	2,400	(ii)	15	2.1		2	
Fluoranthene	mg/kg	280	(ii)	15	8.3		1, 2	
Pyrene	mg/kg	620	(ii)	15	7.1		1, 2	
Benzo(a) Anthracene	mg/kg	7.2	(ii)	15	3.1		1	
Chrysene	mg/kg	15	(ii)	15	2.7		1	
Benzo(b/k) Fluoranthene	mg/kg	2.6	(ii)	15	4.8	WS101 0.20m WS108 0.30m TP117 0.40m	1	**See Discussion**
Benzo(a)Pyrene	mg/kg	2.2	(ii)	15	2.8	WS101 0.20m WS108 0.30m TP117 0.40m	1	**See Discussion**
Indeno (123-cd)Pyrene	mg/kg	27	(ii)	15	1.5	N/A	1	No Further Action
Dibenzo(a,h) Anthracene	mg/kg	0.24	(ii)	15	0.50	WS101 0.20m WS108 0.30m TP117 0.40m	1	**See Discussion**
Benzo(ghi) Perylene	mg/kg	320	(ii)	15	1.3	N/A	1	No Further Action
Organics – TPHs								
Benzene	mg/kg	0.33	(i)	3	<0.001	N/A	2, 5	No Further Action
Toluene	mg/kg	610	(i)	3	0.004		2, 5	

Determinand	Units	GAC	GAC Source	n	[mc]	Location of exceedances	Primary Pathways	Assessment
Ethylbenzene	mg/kg	350	(i)	3	<0.001		1, 2	
o-xylene	mg/kg	250	(i)	3	<0.001		1, 2	
m-xylene	mg/kg	240	(i)	3	0.002		1, 2	
p-xylene	mg/kg	230	(i)	3	0.002		1, 2	
TPH C5-C6 (aliphatic)*	mg/kg	30	(ii)	3	<0.01		2	
TPH C6-C8 (aliphatic)*	mg/kg	73	(ii)	3	<0.01		2	
TPH C8-C10 (aliphatic)*	mg/kg	19	(ii)	3	<0.01		2	
TPH C10-C12 (aliphatic)*	mg/kg	93	(ii)	3	<1		1	
TPH C12-C16 (aliphatic)*	mg/kg	740	(ii)	3	<1		1	
TPH C16-C35 (aliphatic)*	mg/kg	45000	(ii)	3	9		1	
TPH C5-C7 (aromatic)*	mg/kg	65	(ii)	3	<0.01		2	
TPH C7-C8 (aromatic)*	mg/kg	120	(ii)	3	<0.01		2	
TPH C8-C10 (aromatic)*	mg/kg	27	(ii)	3	0.25		2	
TPH C10-C12 (aromatic)*	mg/kg	69	(ii)	3	<1		2	
TPH C12-C16 (aromatic)*	mg/kg	140	(ii)	3	4		1	
TPH C16-C21 (aromatic)*	mg/kg	250	(ii)	3	23		1	
TPH C21-C35 (aromatic)*	mg/kg	890	(ii)	3	48		1	
TPH C5-C6	mg/kg	42	(iii)	14	<0.10		4	
TPH C6-C8	mg/kg	100	(iii)	14	<0.10		4	
TPH C8-C10	mg/kg	27	(iii)	14	<0.10		4	
TPH C10-C12	mg/kg	74	(iii)	14	5		4	
TPH C12-C16	mg/kg	140	(iii)	14	22		1, 2	
TPH C16-C21	mg/kg	260	(iii)	14	93		1	
TPH C21-C35	mg/kg	1,100	(iii)	14	170		1	
PCBs								
EC-7 Suite	µg/kg	0.73	-	2	<0.05	N/A	1,2	No Further Action
PCBs								
WHO-12 Suite	µg/kg	0.008	-	2	<0.05	N/A	1,2	No Further Action

Key	
[mc]	Maximum Concentration Recorded
D.	Detected
N.D.	None Detected (Limit of Detection = <0.0001%)
Primary Pathways	
1	Ingestion of soil and indoor dust and / or oral background exposure;
2	Consumption of home-grown produce and attached soil;
3	Inhalation of dust (background and indoor);
4	Inhalation of vapour (background and indoor);
Generic Assessment Criteria (GAC) Source	
(i)	LQM/CIEH Suitable For Use Level (S4UL) (2015);
(ii)	S4UL – Conservative Assessment Approach of 1% SOM;
(iii)	S4UL –1% SOM and assumed worst case aliphatic / aromatic compound;
(iv)	Defra Category 4 Screening Level (2014);
(v)	CLEA 1.06 Derived Value.

Further Assessment

Referring to Table 9.1, the results of the direct comparison show that screening values have been exceeded for the following determinands:

- Arsenic;
- Lead;
- Benzo(b/k)Fluoranthene;
- Benzo(a)Pyrene; and,
- Dibenzo(a,h)Anthracene.

In the case of each of the above determinands the primary exposure pathway is ingestion. The exposure pathway to the end user will be broken in areas of hardstanding and buildings. A 600mm clean cover in areas of soft landscaping will break the pathway to future end-users of the site. Where hardstanding is proposed (whether it is buildings or car parking) it will remove the direct pollutant linkage between the Made Ground and end users, and therefore, remove the risk. Given the relatively shallow nature of the Made Ground at the site, a programme of 'soil inversion' could be undertaken at the site to win the necessary 'sub-soil cover'.

Construction workers involved in the groundworks and construction during the site redevelopment are at risk from exposure to contaminated soils given their close proximity and contact with the soil which may result in a short term human health risk from the detected contaminants. The primary contaminant exposure pathways are considered to be dermal contact, indirect soil ingestion and inhalation of soils dusts and vapours. These risks can be reduced by appropriate PPE and hygiene precautions and good working practices. It is recommended that normal health and safety procedures should be adopted by groundworkers including no eating, drinking or smoking on-site, designated clean and wash areas and protective clothing.

Movement of impacted soils around the site will require a Materials Management Plan to be undertaken for the site. The Materials Management Plan (MMP) is a document designed in accordance with the Development Industry Code of Practice (COP) "The Definition of Waste", published by Contaminated Land: Application in Real Environments (CL:AIRE). The COP relates to the re-use of chemically and geotechnically suitable materials where a definitive need has been established as part of the development process.

9.2 Controlled Waters

The groundwater vulnerability map shows the site to be located over a Secondary A Aquifer relating to the Pennine Middle Coal Measures Formation overlain by Devensian Till which is unproductive.

The site is considered to be located within a **low** sensitivity setting in regard of controlled waters on the basis that the site is underlain by bands of low permeability glacial Clay which would reduce the migration of mobile contaminants into the underlying Secondary A Aquifer, no groundwater abstraction are located within 1km of the site and the River Irwell is located over 280m south. The Bolton Bury and Manchester is located 56m north west of the site but this is a contained unit of water not in hydraulic continuity with the local groundwater and therefore, not considered a possible receptor.

A Tier I risk assessment has been undertaken with concentrations of determinants compared with the relevant thresholds. The results are summarised in Table 9.2 below.

Table 9.2 Comparison of Groundwater Analysis with Tier 1 Screening Levels

Determinand	Units	Hardness Banding (mg/l $CaCO_3$)	Surface Water Screening Values	Drinking Water Screening Values	WS101 (hardness = 250mg/l)	WS104 (hardness = 130mg/l)	WS113 (hardness = 150mg/l)
Inorganic							
Arsenic	µg/l	-	50 (1)	10(9)	9.9	5.2	3.1
Cadmium	µg/l	< 40	0.08 (3)	5(9)	0.02	<0.02	0.02
	µg/l	40 - < 50	0.08 (3)				
	µg/l	50 - < 100	0.09 (3)				
	µg/l	100 - < 200	0.15 (3)				
	µg/l	> 200	0.25 (3)				
Chromium	µg/l	-	0-50	50(9)	6	2	<1
Copper	µg/l	0 - 50	1 (1)	2000(9)	12	9.9	6.9
	µg/l	50 - 100	6 (1)				
	µg/l	100 - 250	10 (1)				
	µg/l	> 250	28 (1)				
Cyanide	µg/l	-	50	50(9)	<0.05	<0.05	<0.05
Lead	µg/l	-	7.2 (4)	10(9)	0.3	0.5	<0.3
Mercury	µg/l	-	0.05 (3)	1(9)	<0.05	0.21	<0.05
Nickel	µg/l	-	20 (4)	20(9)	3	<1	2
Selenium	µg/l	-	10	10(9)	4.8	1.1	1.1
Sulphate (SO_4)	mg/l	-	400 (5)	250(9)	100	40	21
Zinc	µg/l	0-50	8 (1)	5000(9)	32	14	9
	µg/l	50-100	50 (1)				
	µg/l	100-250	75 (1)				
	µg/l	>250	125 (1)				
pH	µg/l	-	6-9 (6)	-	7.6	7.8	7.5

Table 9.2 (cont.) **Comparison of Groundwater Analysis with Tier 1 Screening Levels**

Determinand	Units	Hardness Banding ($CaCO_3$) mg/l	Surface Water Screening Value	Drinking Water Screening Values	WS101	WS104	WS113
Organic							
Phenol	µg/l	-	7.7 (1)	0.5(9)	<0.1	<0.1	<0.1
TPH C5-C6	µg/l			10(9)	<0.01	<0.01	<0.01
TPH C6-C8	µg/l	-	-	10(9)	<0.01	<0.01	<0.01
TPH C8-C10	µg/l	-	-	10(9)	<0.01	<0.01	<0.01
TPH C10-C12	µg/l	-	-	10(9)	<0.01	<0.01	<0.01
TPH C12-C16	µg/l	-	-	10(9)	<0.01	<0.01	<0.01
TPH C16-C21	µg/l	-	-	10(9)	<0.01	<0.01	<0.01
TPH C21-C35	µg/l	-	-	10(9)	<0.01	<0.01	0.02
Benzo(a)Pyrene	µg/l	-	0.05 (3)	0.03(9)	<0.01	<0.01	0.03
Benzo[b&k] flouranthene	µg/l	-	0.03 (3)	-	<0.01	<0.01	0.07
Benzo(ghi)perylene & Indeno(123-cd) pyrene	µg/l	-	0.02 (3)	-	<0.01	<0.01	0.04
Anthracene	µg/l	-	0.1 (3)	-	<0.01	<0.01	<0.01
Fluoranthene	µg/l	-	0.1 (4)	-	0.01	0.02	0.09
Naphthalene	µg/l	-	2.4 (4)	-	0.03	<0.01	0.01
PAHs (Sum of Four)	µg/l	-	-	0.1(9)	<0.01	<0.01	0.18

Key

(1) Water Framework Directive – Specific Pollutant
(2) Water Framework Directive – General Physico-chemical Standards
(3) Environmental Quality Standard – Priority Hazardous Substance
(4) Environmental Quality Standard – Other Pollutant
(5) Environmental Quality Standard – Other Substances
(6) Environmental Quality Standard – Non Statutory
(7) Water Framework Directive – Groundwater Impacts On Surface Water (Test 2)
(8) Water Framework Directive – General Quality of Groundwater Body (Test 5)
(9) Drinking Water Screening Values
(10) * - Below Laboratory Detection Limits

Groundwater samples were taken from WS101, WS104 and WS113 and tested for a range of contaminants. As no hardness data is available for nearby surface assessed utilising the water features, hardness-dependent determinants have been hardness result from the tested sample.

The results of this direct comparison indicates that the Environmental Quality Standard (EQS) for surface water was exceeded for a number of determinands as follows:

- Mercury in WS104;

- Benzo[b&k]flouranthene in WS113;
- Benzo(ghi)perylene & Indeno(123-cd) pyrene in WS113; and,

The results of this direct comparison indicates that the UK Drinking Water Standard (DWS) was exceeded for:

- PAHs (Sum of Four) compounds in WS113.

Assessment

The risks posed to the bedrock aquifer are considered to be **low** for the following reasons:

- The exceedances recorded at the site were marginal;
- The natural superficial deposits comprise bands of impermeable Clay and have been designated as Unproductive;
- There is therefore considered to be a low potential for the vertical migration of contaminants to the underlying bedrock aquifer; and,
- There are no drinking water abstraction licenses within 2km of the site.

The risks posed to surface waters are considered to be **low** for the following reasons:

- There was only one exceedance recorded for one determinant at the site;
- The nearest recorded surface water course with potential hydraulic continuity with the site is the River Irwell located in excess of 280m away; and,
- Due to the presence of Clays beneath the site restricting the lateral migration of contaminants and the distance to the receptor, the potential for hydraulic continuity between the site and receptor is considered to be low.

9.3 Ground Gas

The potential impact on the development from ground gases will be assessed with reference to standards and guidelines published in CIRIA Report C665 (*Assessing risks posed by hazardous ground gases to buildings*, 2007).

To date, one monitoring visit has been completed, which was undertaken on the 31st March 2015 with an atmospheric pressure of 995mbar within a falling period. All borehole flow rates were below 0.1l/hr. No elevated levels of carbon dioxide or methane were recorded within any of the monitoring wells.

In accordance with the methodology outlined with the CIRIA publication C665, REC have utilised the results of the ground gas monitoring surveys to calculate a tentative Gas Screening Value (GSV). The maximum GSV calculated for methane was 0.0001l/hr and for carbon dioxide was 0.0035l/hr.

CIRIA C665 states that the maximum GSV for carbon dioxide and methane is <0.07 l/hr for Characteristic Situation 1 and therefore the site would fall into this bracket requiring no gas precaution measures.

This is an interim assessment based on preliminary ground gas readings, the final classification will be supplied as an addendum to this report on completion of the remaining monitoring visits.

9.4 Revised Conceptual Site Model

The initial conceptual site model has been revised in light of the ground investigation and is based on the identified contaminant sources and pathways as shown in Table 9.4 below.

Table 9.3 Identified Contaminant Sources and Pathways

Source	Contaminant	Pathway
Made Ground – ash and demolition deposits	Arsenic; Lead; Benzo(b/k)Fluoranthene; Benzo(a)Pyrene; and, Dibenzo(a,h)Anthracene	Ingestion

The initial conceptual site model has been revised in light of the ground investigation and the chemical analysis results presented the previous sections. The revised conceptual site model has been developed for the proposed future land use based upon the recommended remedial measures, this summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors, as detailed below in Table 9. 4.

Table 9.4 Revised Conceptual Site Model

Source	Receptor	Potential Risk / Pathway	Mitigation Measures
Made Ground	Residential End Users	*Uptake of contaminants by food plants grown in contaminated soil*	A minimum provision of 600mm clean cover all soft landscaping areas will break the pathways identified.
		Ingestion	
		Skin contact	

Source	Receptor	Potential Risk / Pathway	Mitigation Measures
		Inhalation	
	Ecological Receptors	*Phytotoxicity*	
	End Users and Structures	*Fire and explosion*	Gas assessment will provided in an addendum report
		Irradiation	Radon protection measures are not required for the development.
	Buildings	*Chemical attack on building materials and services*	DS-1 and ACEC AC-1 concrete design. Consideration should be given to raising this to DS-2 ACEC-2 in the area of WS8 dependent on fate of Made Ground in this area. A water pipeline risk assessment should be undertaken.
	Construction Workers	*Direct contact, ingestion and inhalation.*	Standard PPE and hygiene measures will be sufficient to mitigate any risks.
Potential Organic Materials	End Users and Structures	*Fire and explosion*	Provide a watching brief during the earthworks and enabling phase to identify and investigate, and if necessary segregate, unexpected ground conditions or materials with a high organic content.
Unexpected Ground Conditions	-	-	

10.0 GEOTECHNICAL ASSESSMENT

10.1 Proposed Development

REC has been provided with a preliminary sketch layout plan comprising 94No. low-rise residential dwellings with private gardens, driveways, roads and infrastructure. The proposed development plan Drawing No. 46009-002 is contained in Appendix III.

Details of the proposed loadings are not known and therefore a line loading of 75kN/m has been assumed for preliminary assessment purposes only.

10.2 Summary of Ground Conditions

Ground conditions identified at the site are summarised in Table 8.1, Section 8 and essentially comprises either Topsoil or Made Ground encountered to a maximum depth of 2.20m bgl overlying interbedded Clays and Sands.

10.3 Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

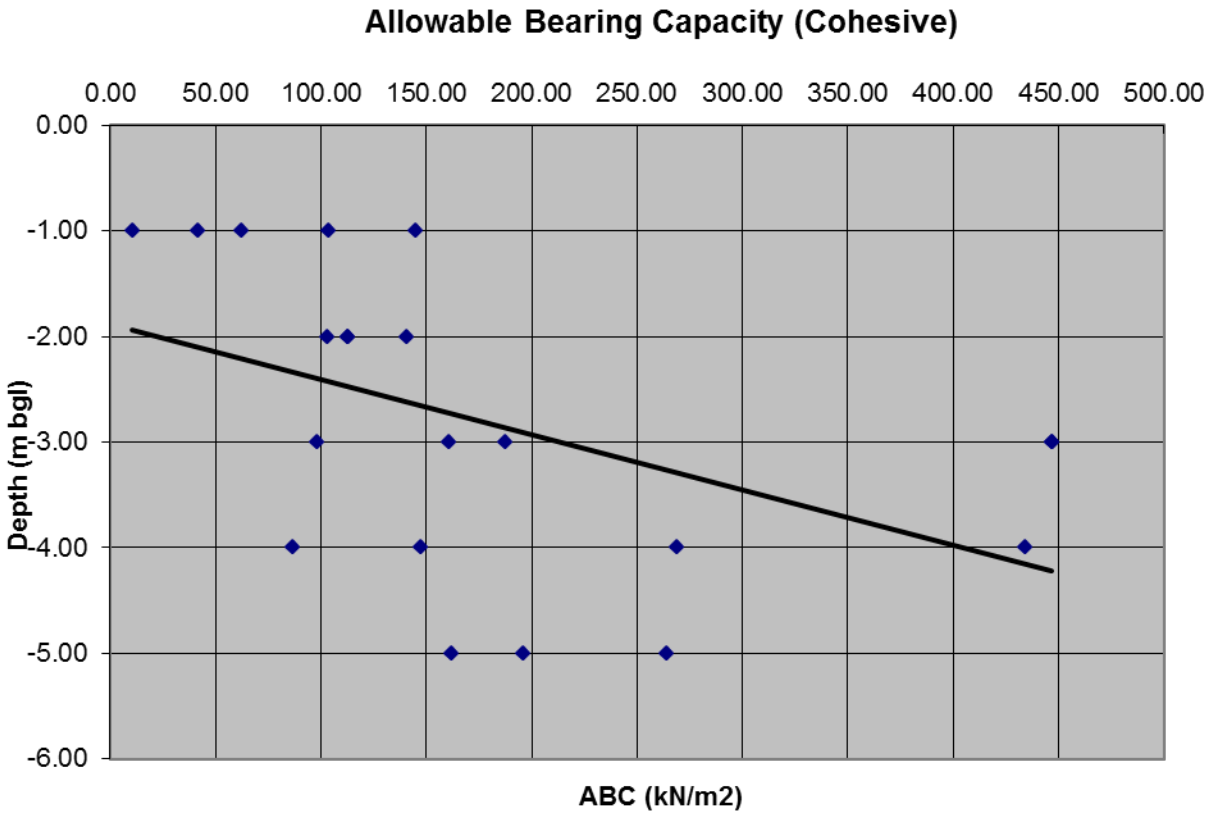
- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill;
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill;
- Buried structures and old foundations should be excavated from below the proposed development foot print with the resulting void backfilled; and,
- Site Regrading may be required to obtain the optimum development platform for the proposed end use.

10.4 Foundation Conditions and Bearing Capacity

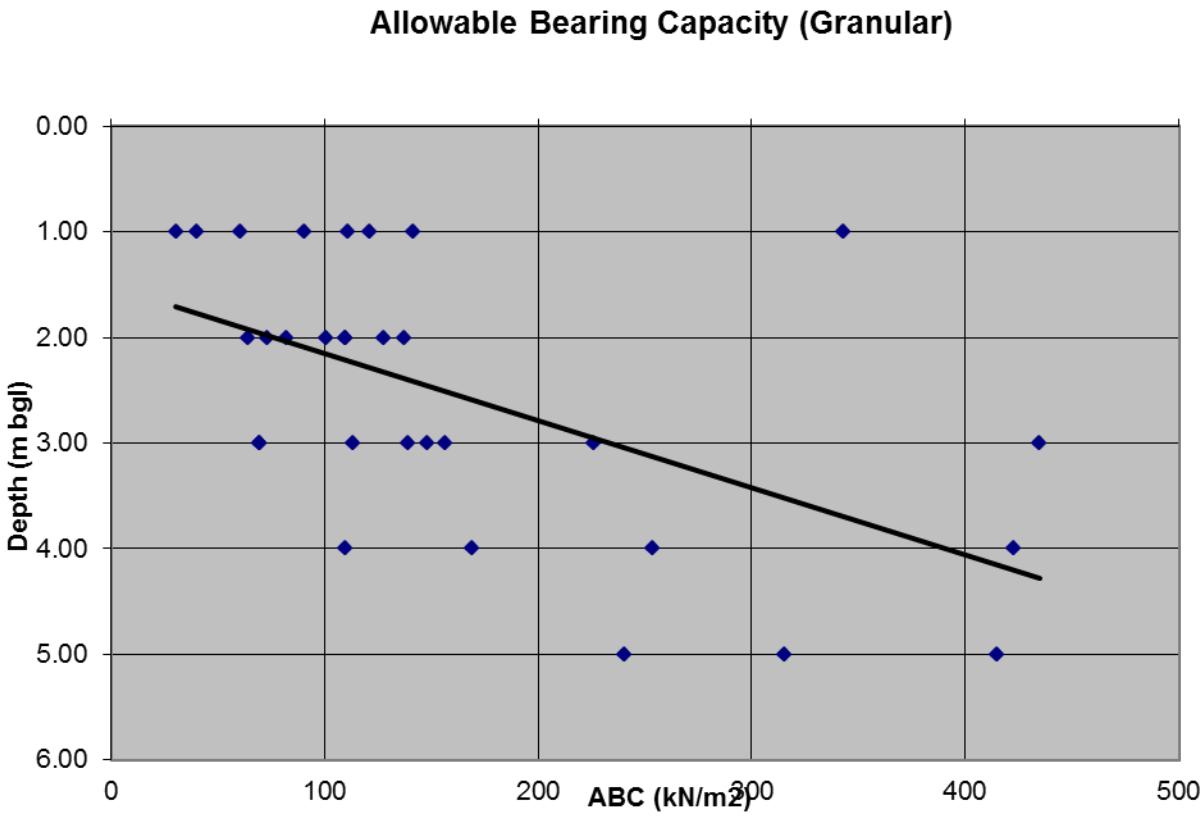
General

An assessment of the Allowable Bearing Capacity (ABC) at the site has been undertaken using data obtained from in-situ SPT tests.

Graph 10.1 Cohesive ABC



Graph 10.2 Granular ABC



10.5 Foundation Conditions and Bearing Capacity

General

It is considered that the Made Ground is not suitable for a founding material due to the inherent variability of the material. The natural strata immediately underlying the site is either granular or cohesive with no pattern discernible that would enable site zoning. The initial Allowable Bearing Capacity does not display a discernible pattern to allow for an initial target stratum. The proposed solutions are therefore.

- The use of ground improvement techniques such as vibro stone columns will allow shallow foundations to be utilised within the Made Ground. The vibro stone columns should provide a bearing capacity of around 150kN/m^2 and will also remove variability within the Made Ground. Specialist advice should be sought from a suitably experienced contractor with regard to allowable bearing capacity and settlements;

- As an alternative, raft foundations could be utilised following an earthwork exercise where the associated void should be backfilled with suitably compacted engineered fill. Any loose/soft soils at and below foundation depth should be removed and the resulting voids backfilled with suitable material. Detailed design should be undertaken by a suitably qualified structural engineer to take into account differential settlement, stiffening and strengthening of the underlying materials in order to meet the requirements of the raft foundation.

  All soft and very soft zones encountered should be removed and replaced with suitably compacted materials. Appropriate strength tests should then be undertaken in the compacted material to ensure that materials are of suitable strength for the proposed development.

- Piled foundations. Further significant site investigation would be required by cable percussion technique to determine suitable piling depths.

Recommendation

The use of ground improvement techniques is considered the most suitable foundation solution for the site.

The Atterberg Limits determinations, summarised in Table 8.4, show the clay to be predominantly of intermediate plasticity with a low to medium volume change potential and as such the sides of the foundations may require protection using clay board or similar.

10.6 Ground Floor Slabs

It is recommended that suspended floor slabs are utilised in areas where the Made Ground deposits are in excess of 600mm thick.

Where suspended floor slabs are employed ventilation of the under floor void will be required to address condensation issues. This would also assist in the mitigation of potential vapour and gas ingress issues.

10.7 Road and Pavement Construction

An assessment of the likely California Bearing Ratio (CBR) has been assessed using the DCP.

The tests returned results of between 4% and 28% at formation level (note: DCP108 failed due to pushing a cobble). It is recommended that a further assessment by means of plate load testing is undertaken following excavation during the construction phase.

Following excavation the sub formation should be proof rolled and any soft material inspected and removed.

10.8 Drainage

It is considered that a combination of the underlying natural low permeability Clay and encountered perched water across the site will preclude the use of soakaways for the disposal of surface water runoff at the site.

10.9 Concrete Durability

Based upon the results of the chemical analyses summarised in Section 8.1.10 it is considered that subsurface concrete may be designed in accordance with Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1 in accordance with the recommendations provided in BRE Special Digest 1 (2005). Consideration should be given to increasing this designation in the area of WS108 to DS-2 AC-2 depending on the fate of the Made Ground in that area.

10.10 Excavations

Site observations indicated that excavations should be feasible in the near surface with normal plant, however obstructions were identified in the near surface including former foundations and former floor slabs. It is anticipated that any obstructions will be grubbed out during the reduced level dig for the sub structure works.

Groundwater was recorded predominantly in the Sand horizons across the site with occasional perched bodies at the Made Ground / Natural Ground interface. Any foundation, drainage or service excavations may require support and sump pumping. However, in some areas of the site groundwater ingress is likely to be rapid and may have to be dealt with by well point dewatering methods. If significant pumping is required, consideration should be given to the potential off-site geotechnical impact to surrounding properties of dewatering in granular material.

It is considered that any water pumped from excavations should be chemically tested prior to disposal.

10.11 Minerals

The Coal Authority Report indicates that the site is in the likely zone of influence from 6 seams of coal at depths of between 50m and 450m, last worked in 1900. The site is also in an area where the Coal Authority considers that there is coal at or close to the surface which may have been worked at some time in the past.

The BGS 1:10,560 geological map (1910 Edition) records the Top Five Quarters seam outcropping adjacent to the northwest site boundary and dipping shallowly at 7˚ beneath the site. 3No. shafts are recorded in close proximity to the site.

The Coal Authority interactive map viewer indicates that the site is located in a development high

risk area and as such a Coal Mining Risk Assessment (CMRA) Report is required for the site. The REC Ltd CMRA report for the site (reference: 46029p2r0) should be viewed in conjunction with this report.

11.0 CONCLUSIONS & RECOMMENDATIONS

Geotechnical Assessment

Foundations

The use of ground improvement techniques such as vibro stone columns will allow shallow foundations to be utilised within the Made Ground. The vibro stone columns should provide a bearing capacity of around 150kN/m^2 and will also remove variability within the Made Ground. Specialist advice should be sought from a suitably experienced contractor with regard to allowable bearing capacity and settlements. Alternative options include raft foundations and piled foundations.

Pavement Design

Due to the inherent variability at road formation level (4%-28% CBR) due to the non-homogenous nature of Made Ground at the site, REC would recommend that CBR values are re-assessed using on-site plate load tests of the formation level during the construction phase.

Drainage Design

It is considered that a combination of the underlying natural low permeability Clay and encountered perched water across the site will preclude the use of soakaways for the disposal of surface water runoff at the site.

Excavations

Groundwater was recorded predominantly in the Sand horizons across the site with occasional perched bodies at the Made Ground / Natural Ground interface. Any foundation, drainage or service excavations may require support and sump pumping. However, in some areas of the site groundwater ingress is likely to be rapid and may have to be dealt with by well point dewatering methods. If significant pumping is required, consideration should be given to the potential off-site geotechnical impact to surrounding properties of dewatering in granular material.

Concrete Design Class

Concrete design sulphate class DS-1 and ACEC AC-1 classifications apply. Consideration should be given to increasing this to DS-2 AC-2 in the vicinity of WS108.

Coal Mining

The Coal Authority interactive map viewer indicates that the site is located in a development high risk area and as such a Coal Mining Risk Assessment (CMRA) Report is required for the site. The REC Ltd CMRA report for the site (reference: 46009p2r0) should be viewed in conjunction with this report.

Revised Conceptual Site Model

Human Health

The Tier I Human Health Risk has identified elevated concentrations of heavy metals and polycyclic aromatic hydrocarbons associated with the Made Ground across the entirety of the site. All soft landscaped areas throughout the site are to be provided with a minimum 600mm cover of clean soil. This will remove the exposure pathway and ensure there is no unacceptable risk to human health.

Any material movements within this area should be undertaken in a controlled manner, managed by a regulatory approved Remediation Strategy and utilising appropriate PPE to ensure there is no risk to those undertaking the works or the adjacent residents.

Controlled Waters

Whilst marginal exceedances with regard to Mercury and PAHs were recorded, REC has determined that there is no unacceptable level of risk to controlled waters due to the distance to controlled water receptors and underlying Glacial Till retarding migration of contaminants.

Ground Gas

To date one gas monitoring visit indicates that the site is Characteristic Situation 1 / NHBC green requiring no gas protection measures. This is an interim assessment based on preliminary ground gas readings, the final

classification will be supplied as an addendum to this report on completion of the remaining monitoring visits.
Recommendations
A minimum of 600mm clean cover across all soft landscaping areas will be required for the site. REC recommends that a detailed Remediation Strategy is devised for the site and agreed with the local authority.

END OF REPORT

APPENDIX I

LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between REC Ltd and the Client as indicated in Section 1.2.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not be made known or accessible.

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

6. In addition to the above REC Ltd note that when investigating, or developing, potentially contaminated land it is important to recognise that sub-surface conditions may vary spatially and also with time. The absence of certain ground, ground gas, and contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Due to the presence of existing buildings and structures access could not be obtained to all areas. Additional contamination may be identified following the removal of the buildings or hard standing.

7. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

8. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.

9. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

10. This report presents an interpretation of the geotechnical information established by excavation, observation and testing. Whilst every effort is made in interpretative reporting to assess the soil conditions over the Site it should be noted that natural strata vary from point to point and that man made deposits are subject to an even greater diversity. Groundwater conditions are dependent on seasonal and other factors. Consequently there may be conditions present not revealed by this investigation.

11. REC can not be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by REC is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by REC in this connection without their explicit written agreement there to by REC.

12. Rather, this investigation has been undertaken to provide a preliminary characterisation of the existing sub-surface geotechnical characteristics and make up and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

13. This investigation has been undertaken to reasonably characterise existing sub-surface conditions and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II

GLOSSARY

TERMS

AST	Above Ground Storage Tank
BGS	British Geological Survey
BSI	British Standards Institute
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CIEH	Chartered Institute of Environmental Health
CIRIA	Construction Industry Research Association
CLEA	Contaminated Land Exposure Assessment
CSM	Conceptual Site Model
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)
DWS	Drinking Water Standard
EA	Environment Agency
EQS	Environmental Quality Standard
GAC	General Assessment Criteria
GL	Ground Level
GSV	Gas Screening Value
HCV	Health Criteria Value
ICSM	Initial Conceptual Site Model
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)
ND	Not Detected
LMRL	Lower Method Reporting Limit
NR	Not Recorded
PAH	Poly Aromatic Hydrocarbon
PCB	Poly-Chlorinated Biphenyl
PID	Photo Ionisation Detector
QA	Quality Assurance
SGV	Soil Guideline Value
SPH	Separate Phase Hydrocarbon
Sp.TPH (CWG)	Total Petroleum Hydrocarbon (Criteria Working Group)
SPT	Standard Penetration Test
SVOC	Semi Volatile Organic Compound
UST	Underground Storage Tank
VCCs	Vibro Concrete Columns
VOC	Volatile Organic Compound
WTE	Water Table Elevation

UNITS

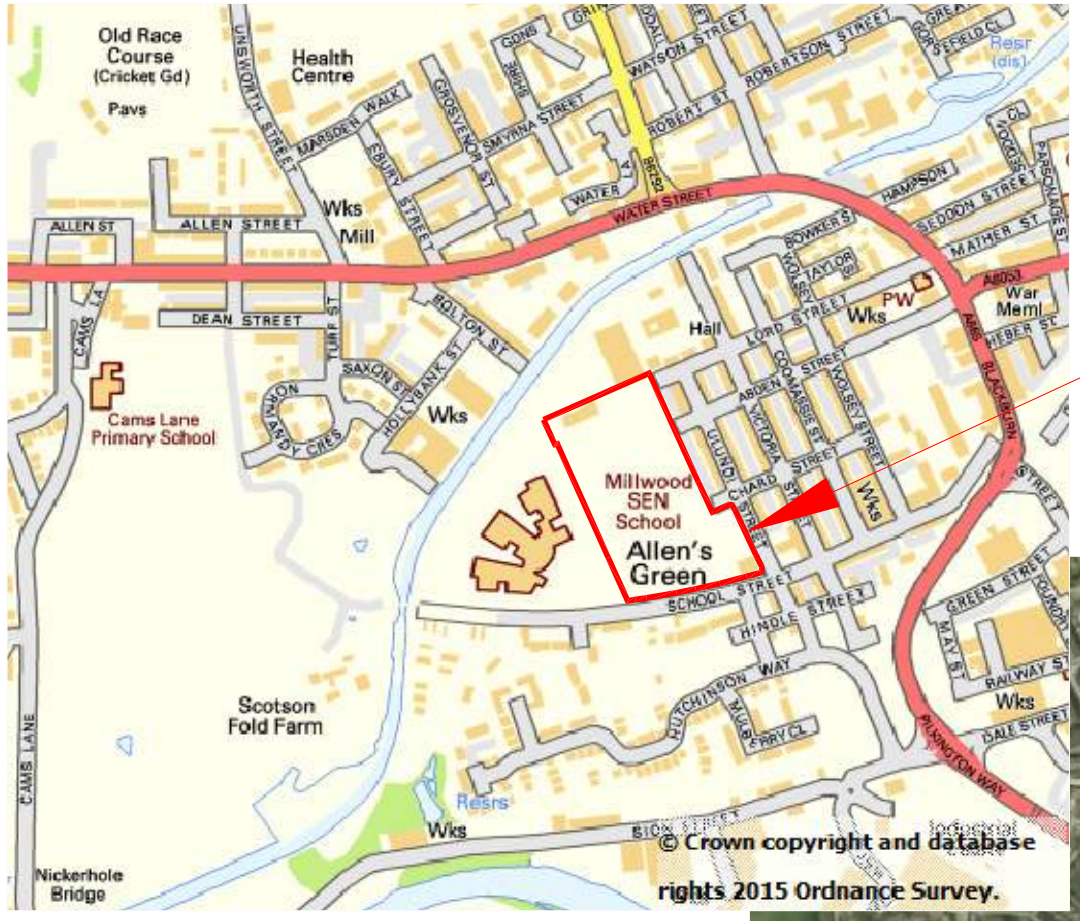
m	Metres
km	Kilometres
%	Percent
%v/v	Percent volume in air
mb	Milli Bars (atmospheric pressure)
l/hr	Litres per hour
µg/l	Micrograms per Litre (parts per billion)
ppb	Parts Per Billion
mg/kg	Milligrams per kilogram (parts per million)
ppm	Parts Per Million
mg/m^3	Milligram per metre cubed
m bgl	Metres Below Ground Level
m bcl	Metre Below Cover Level

mAOD	Metres Above Ordnance Datum (sea level)
kN/m^2	Kilo Newtons per metre squared
µm	Micro metre

APPENDIX III

DRAWINGS

Site Location





Key:

Site Boundary

Notes:

P1	R1	13-04-2015	Revision	KD	RP
Phase	Revision	Date	Issue	Drawn	Authorised

Client: Galliford Try/Bury MBC

Job No: 46009

Date: 13-04-2015

Drawing No: 001

Scale: N.T.S

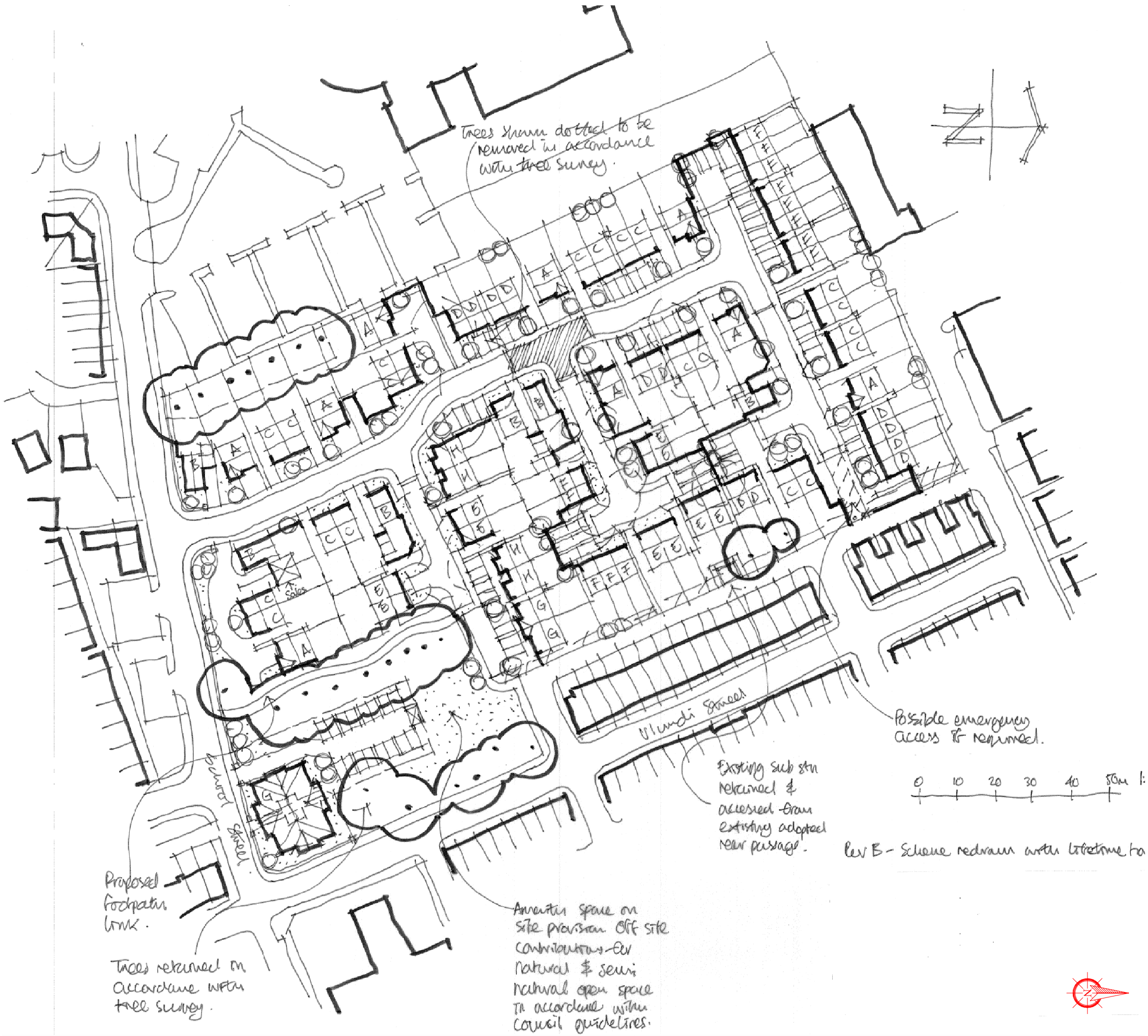
Job Title: School Street, Radcliffe

Drawing Title: Site Location Plan

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Key:

Notes:

P1	R1	13-04-2015	Revision	KD	RP
Phase	Revision	Date	Issue	Drawn	Authorised

Client: Galliford Try/Bury MBC

Job No: 46009

Date: 13-04-2015

Drawing No: 002

Scale: N.T.S

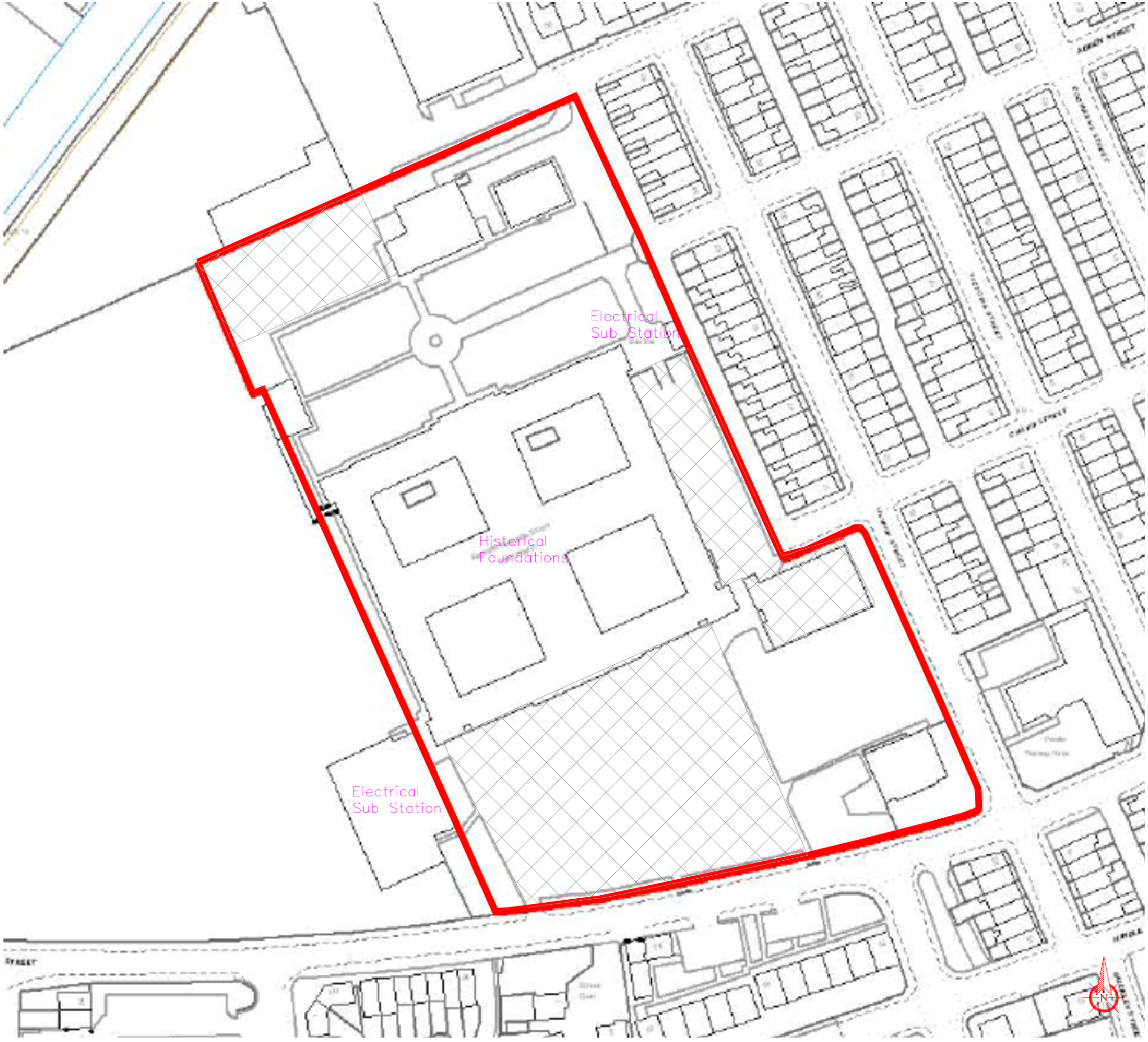
Job Title: School Street, Radcliffe

Drawing Title: Proposed Development Plan

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Key:

Hardstanding

Notes:

P1	R1	17-04-2015	Revision	KD	RP
Phase	Revision	Date	Issue	Drawn	Authorised

Client: Galliford Try/Bury MBC

Job No: 46009

Date: 17-04-2014

Drawing No: 005

Scale: N.T.S

Job Title: School Street, Radcliffe

Drawing Title: Geological Features Plan

REC Resource & Environmental Consultants Ltd

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Key:

Former School

Notes:

P1	R1	13-04-2015	Revision	KD	RP
Phase	Revision	Date	Issue	Drawn	Authorised

Client: Galliford Try/Bury MBC

Job No: 46009

Date: 13-04-2015

Drawing No: 004

Scale: N.T.S

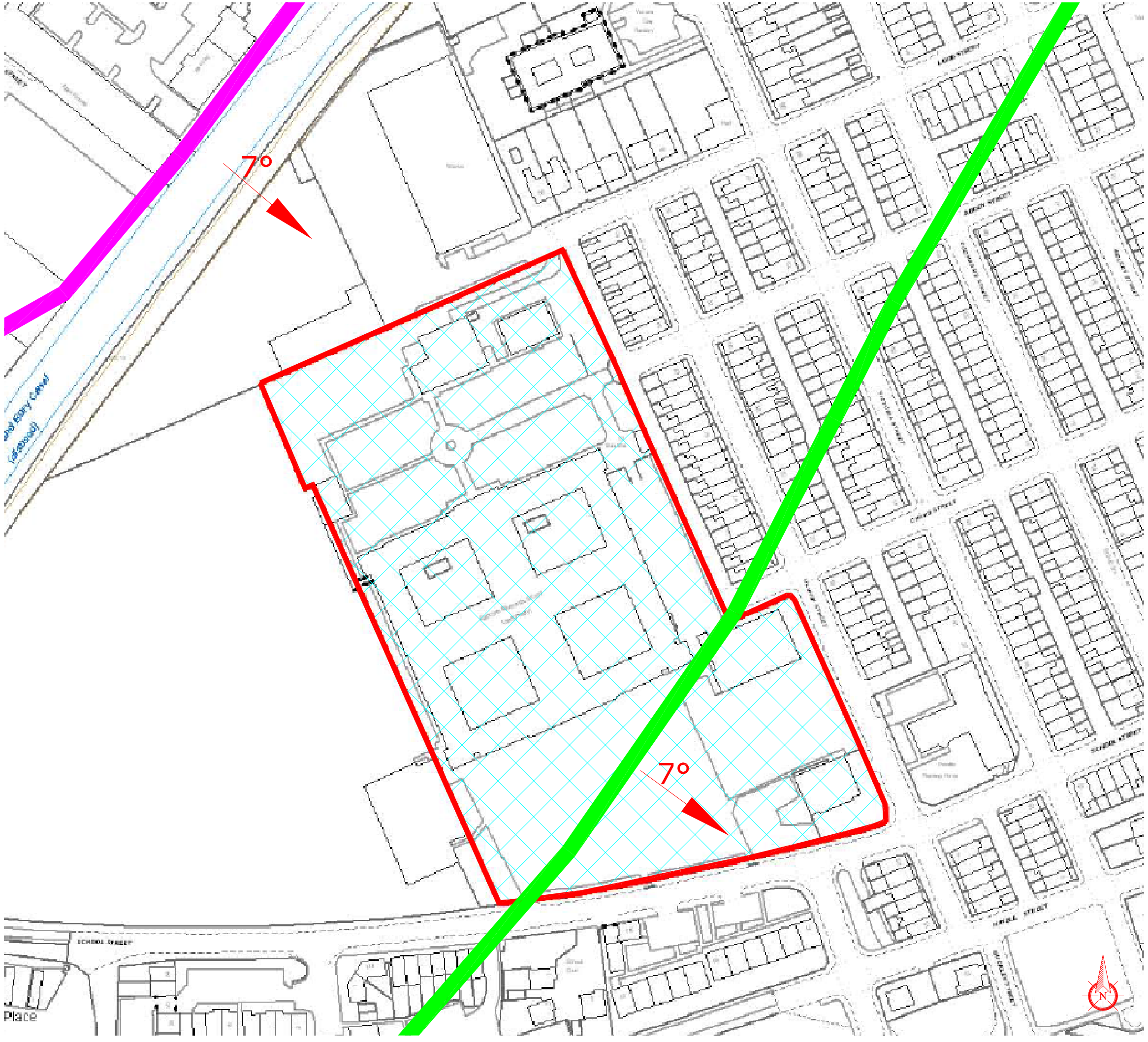
Job Title: School Street, Radcliffe

Drawing Title: Historical Features Plan

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Key:

- Top Five Quarters (Coal Seam)
- Stonedelph Mine (Coal Seam)
- Pennine Middle Coal Measures

Notes:

P1	R1	17-04-2015	Revision	KD	RP
Phase	Revision	Date	Issue	Drawn	Authorised

Client: Galliford Try/Bury MBC

Job No: 46009

Date: 17-04-2014

Drawing No: 005

Scale: N.T.S

Job Title: School Street, Radcliffe

Drawing Title: Geological Features Plan

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APPENDIX IV

PHOTOGRAPHS



Photograph 1: General view north taken from mid east.



Photograph 2: Access gate in the north east showing fly tipping and suspected asbestos containing materials.



Photograph 3: Suspected ACM.



**Photograph 4: General view north from south east –
including substation to the far east and fly tipping at site perimeter.**



Photograph 5: Fly tipping in the east perimeter.



Photograph 6: General view of south east corner.



Photograph 7: General view from south west corner facing east.



Photograph 8: General view from the mid east facing west.



Photograph 9: TP101.



Photograph 10: TP101 Arisings



Photograph 11: TP105-A – Concrete base



Photograph 12: TP105-A Arisings.



Photograph 13: TP112.



Photograph 14: TP112 Arisings.



Photograph 15: TP116.

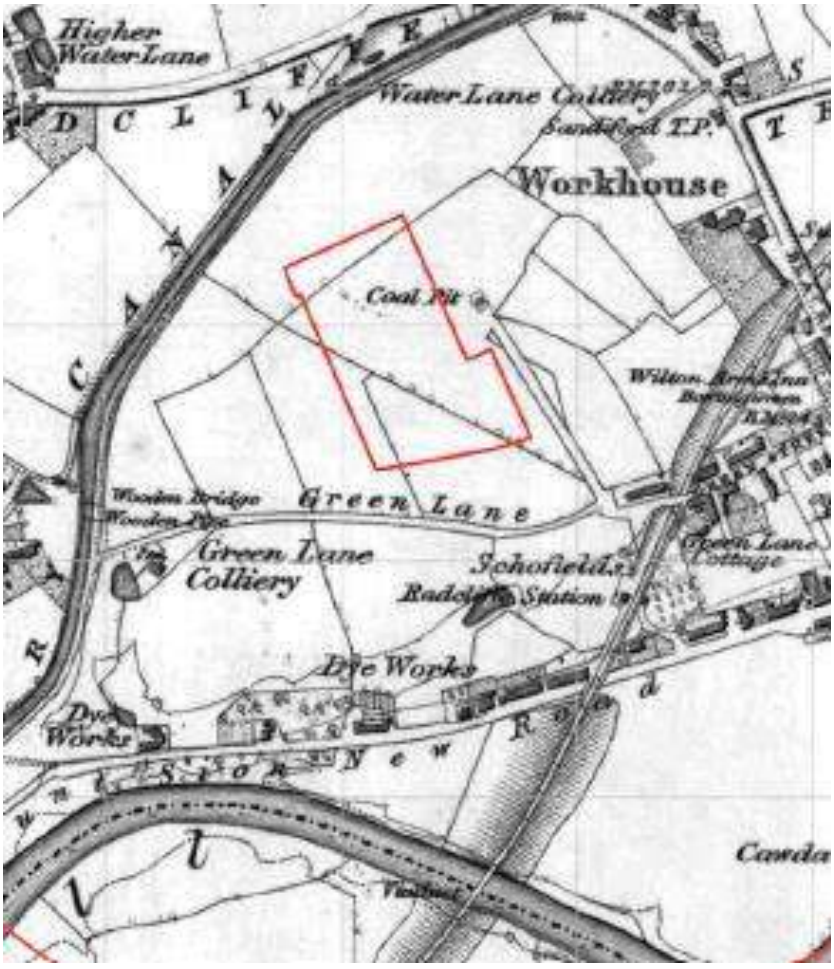


Photograph 16: TP116 Arisings.

APPENDIX V

HISTORICAL MAPS

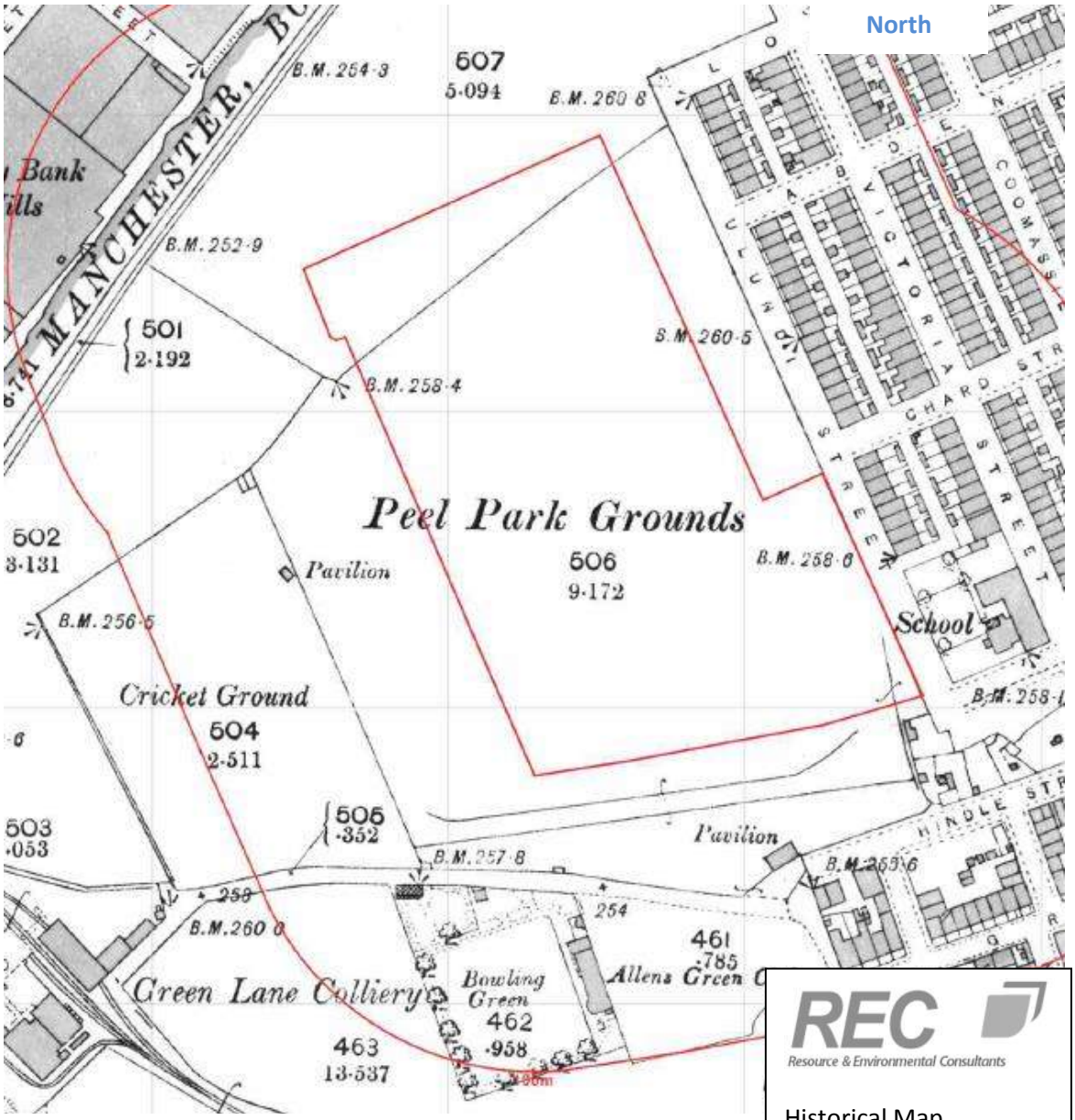
North



Historical Map

Dated: 1851

Original Scale: 1:10,560

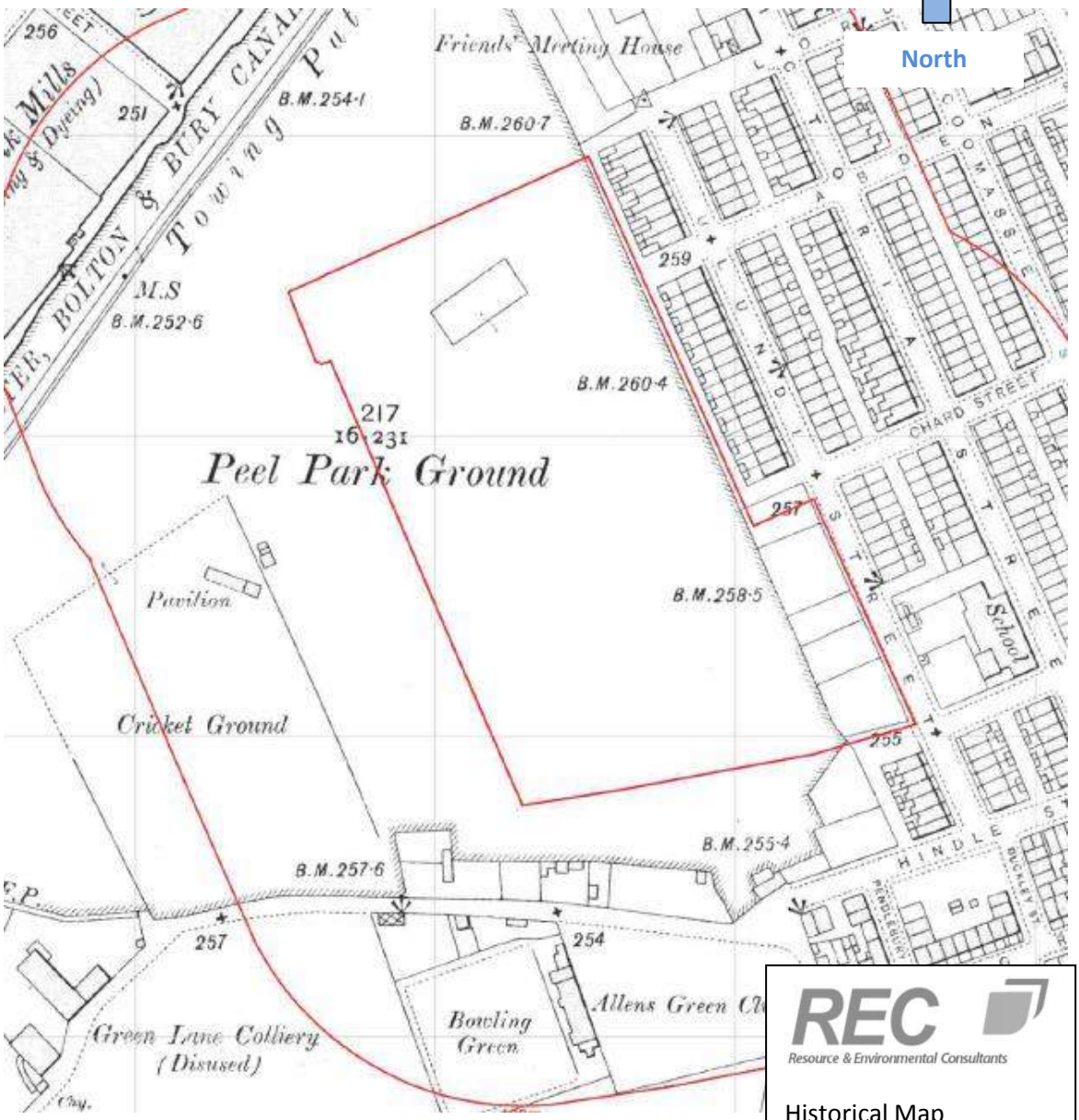


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Historical Map

Dated: 1893

Original Scale: 1:2,500

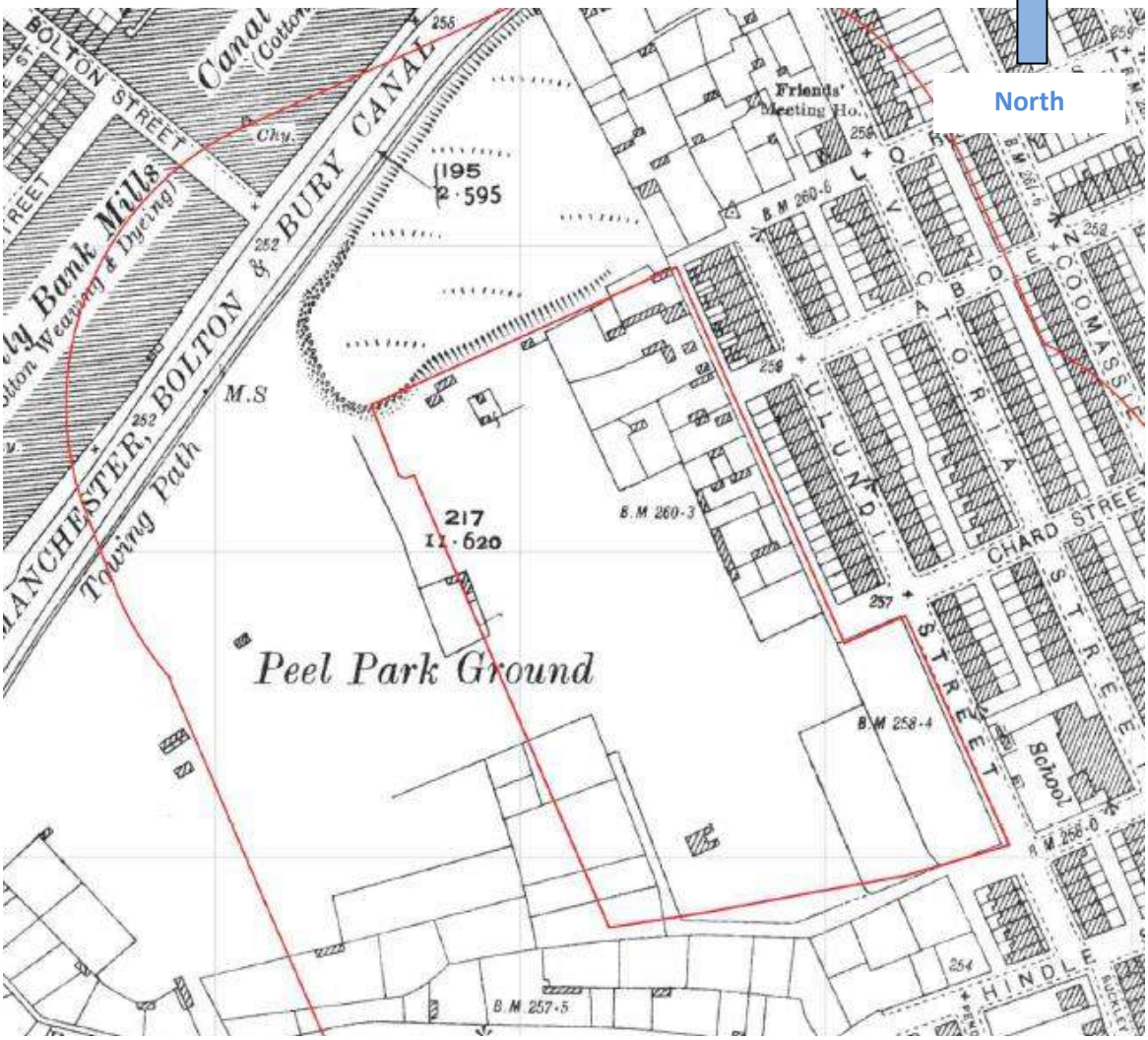


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Historical Map

Dated: 1909

Original Scale: 1:2,500

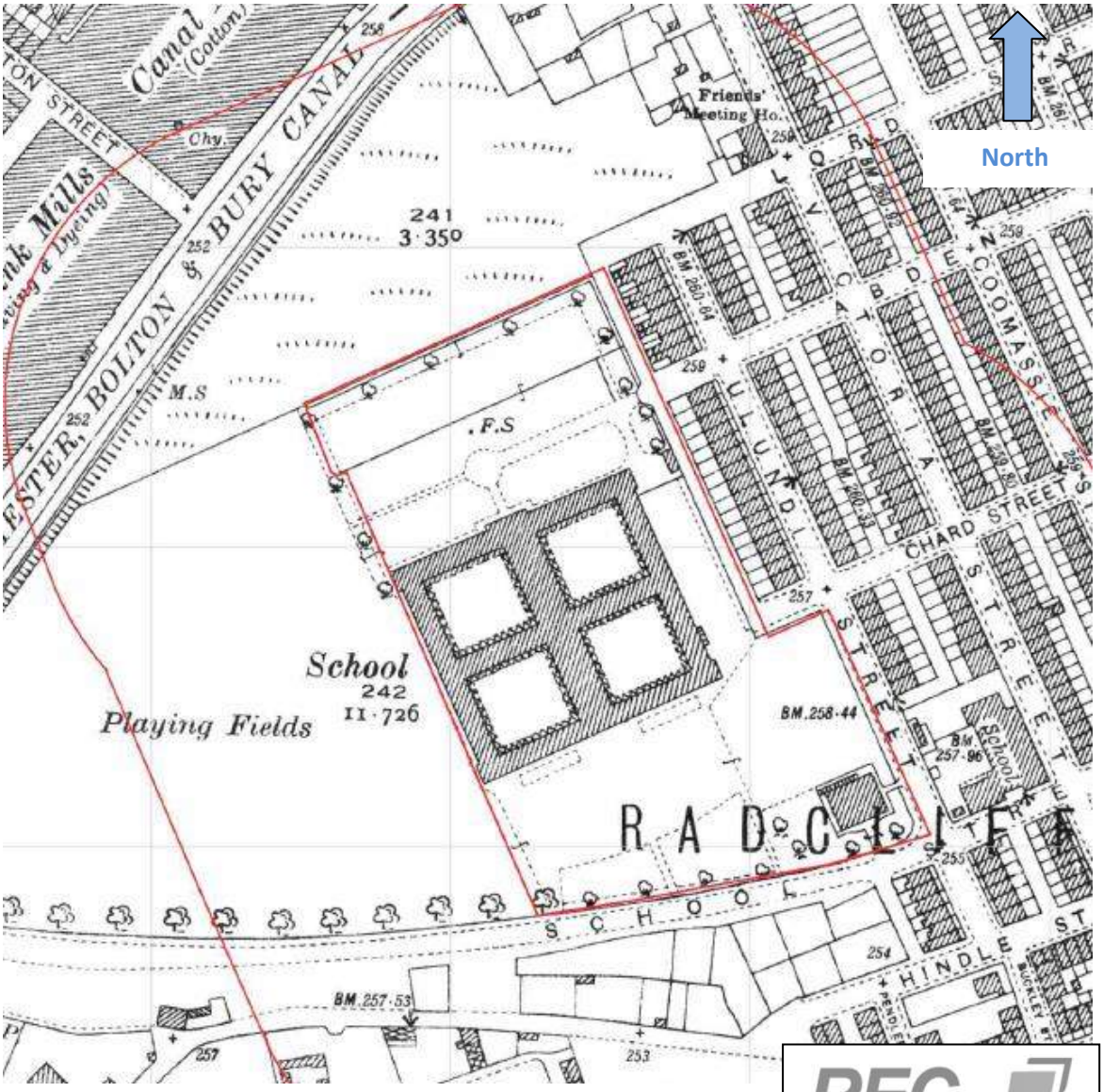


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Resource & Environmental Consultants

Historical Map

Dated: 1929

Original Scale: 1:2,500

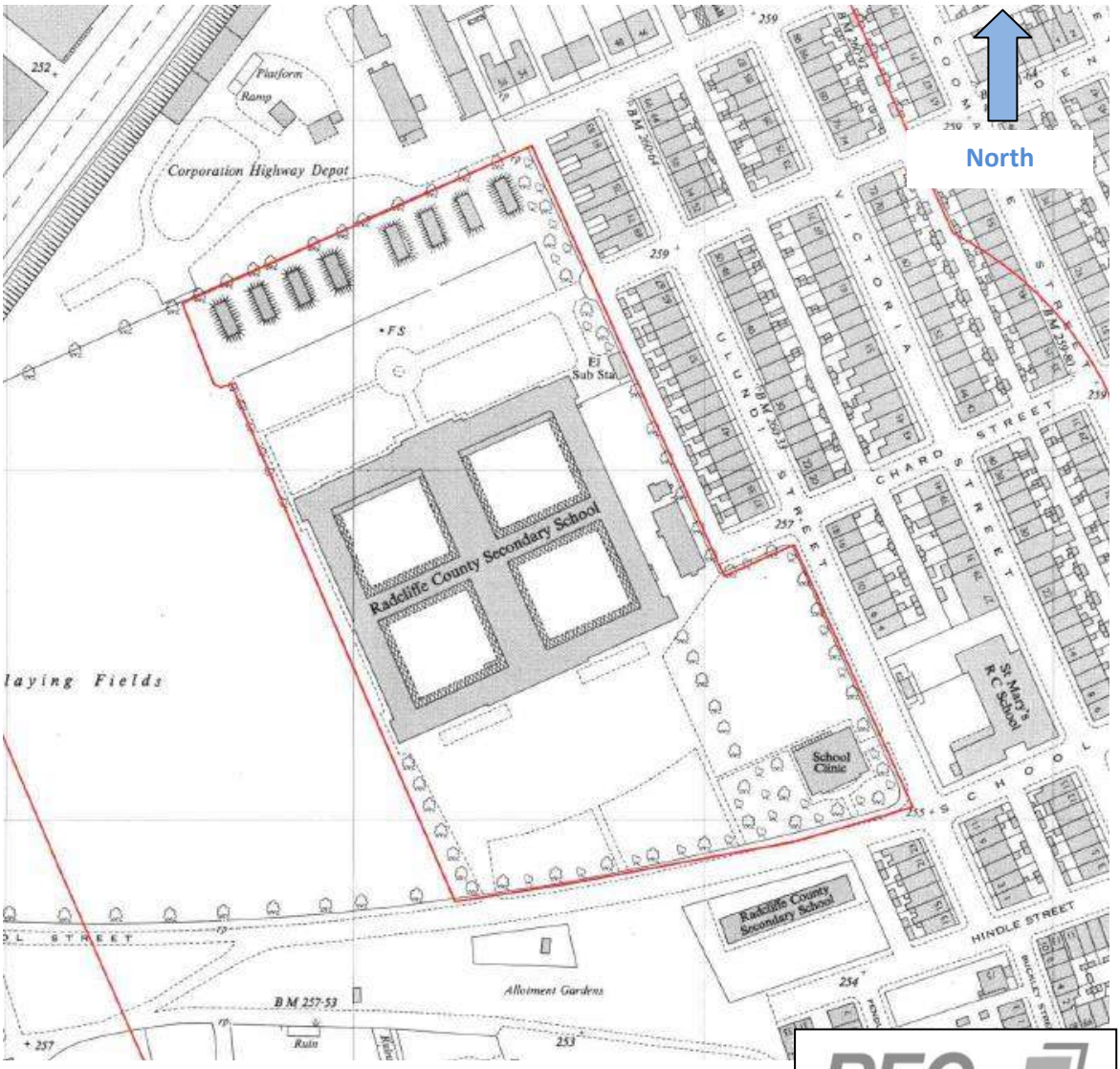


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Historical Map

Dated: 1937

Original Scale: 1:2,500



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Historical Map

Dated: 1955/56

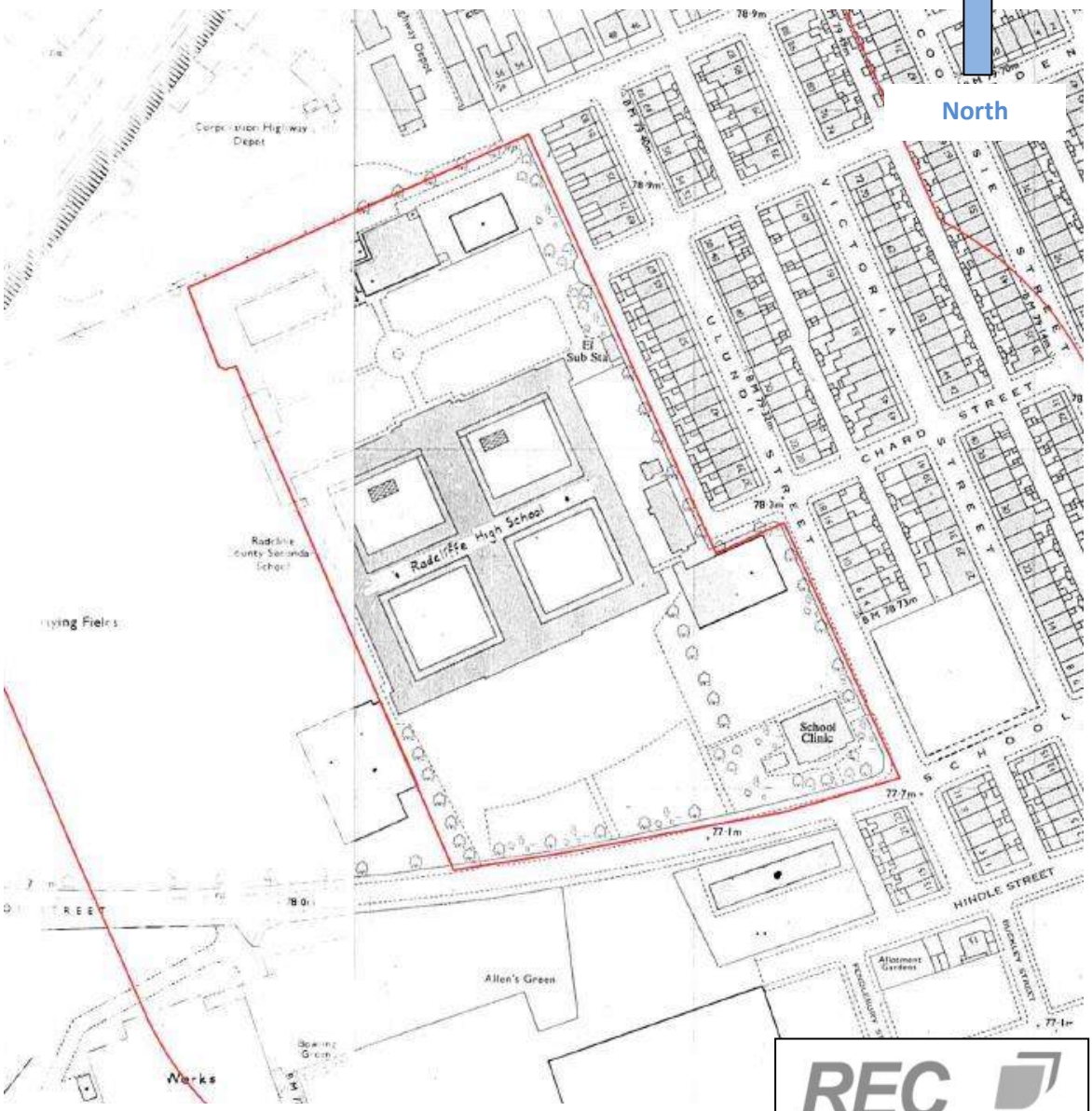
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Historical Map

Dated: 1970/75

Original Scale: 1:1,250

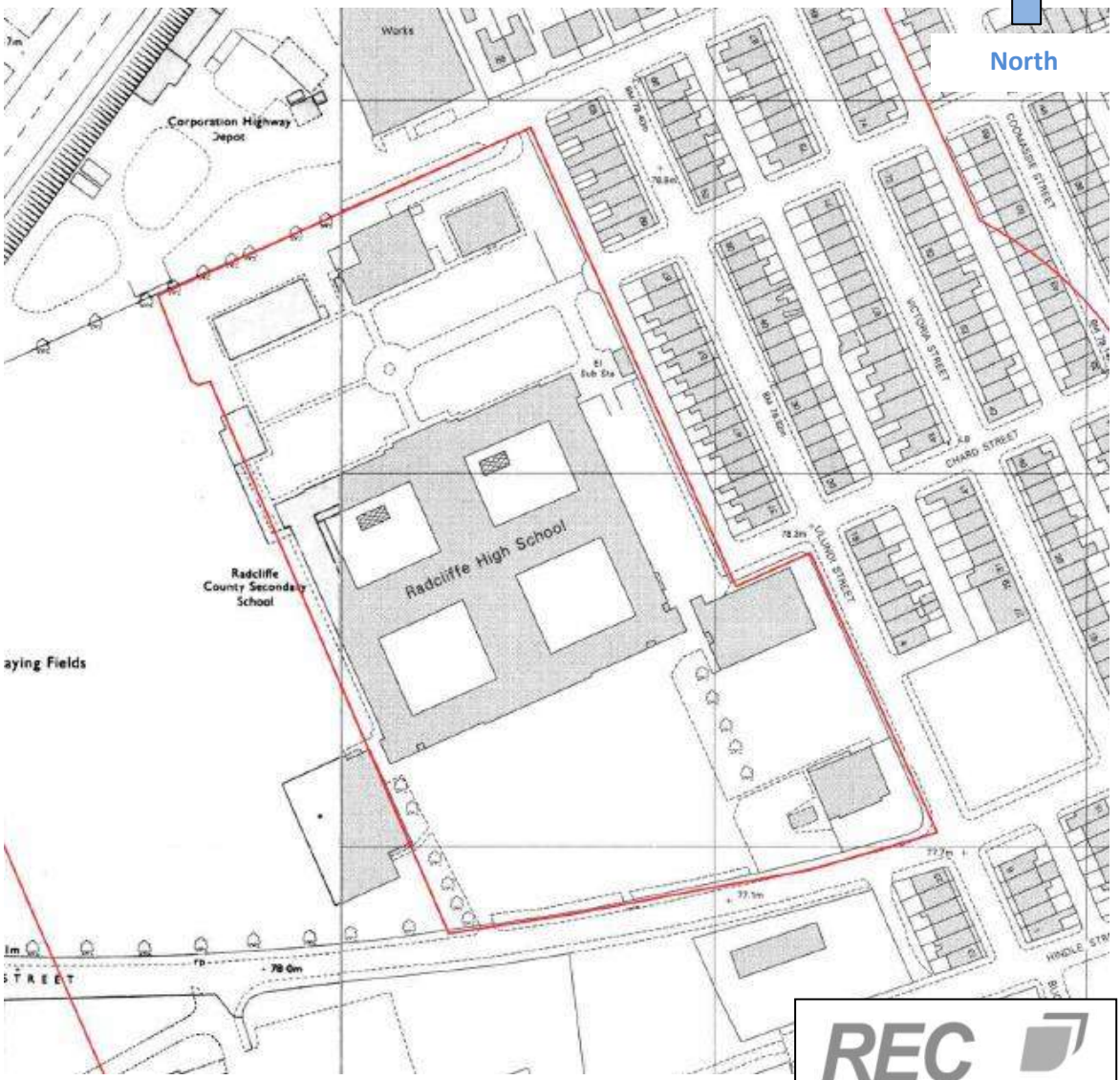


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Historical Map

Dated: 1985

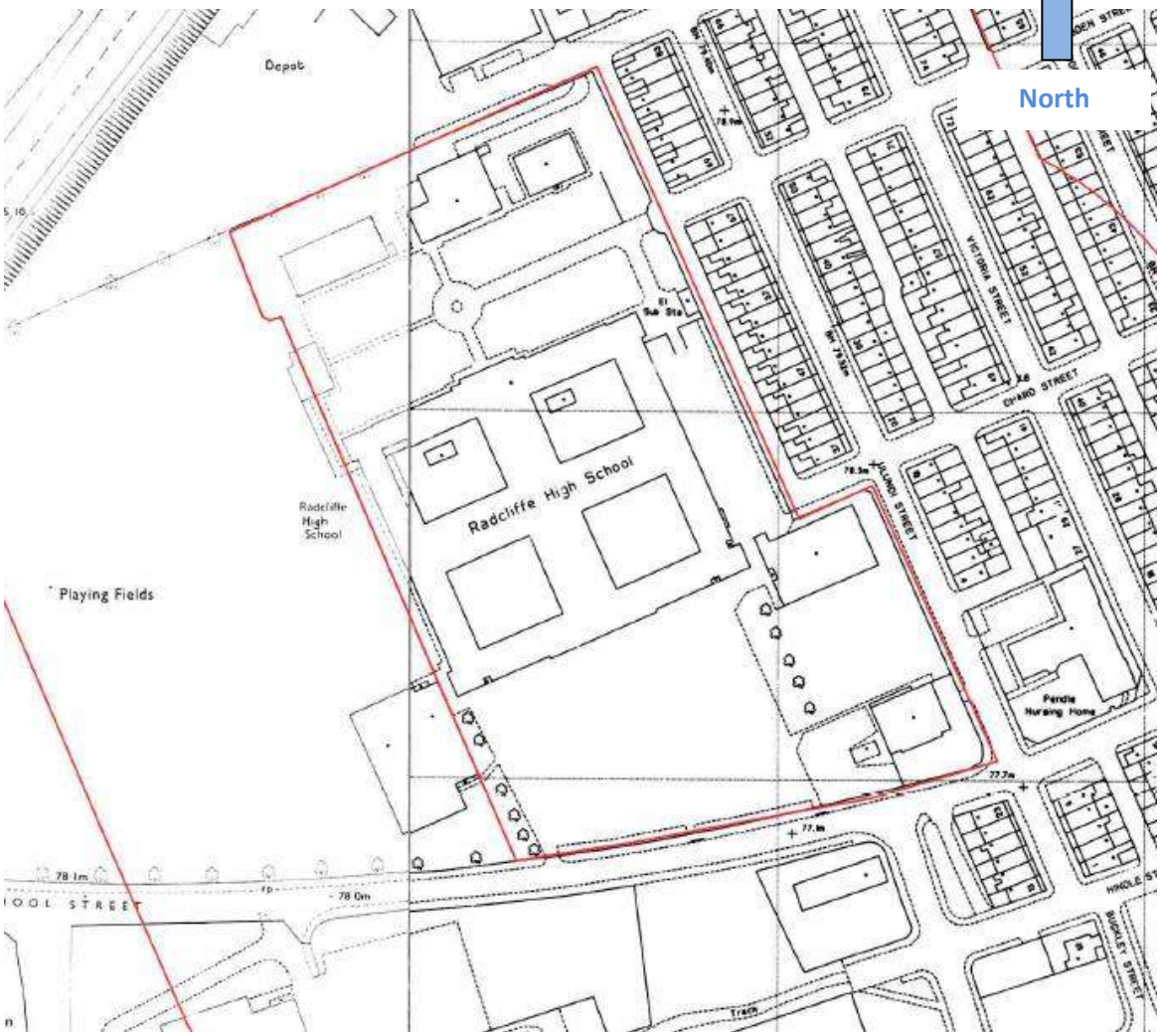
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Historical Map

Dated: 1989

Original Scale: 1:1,250

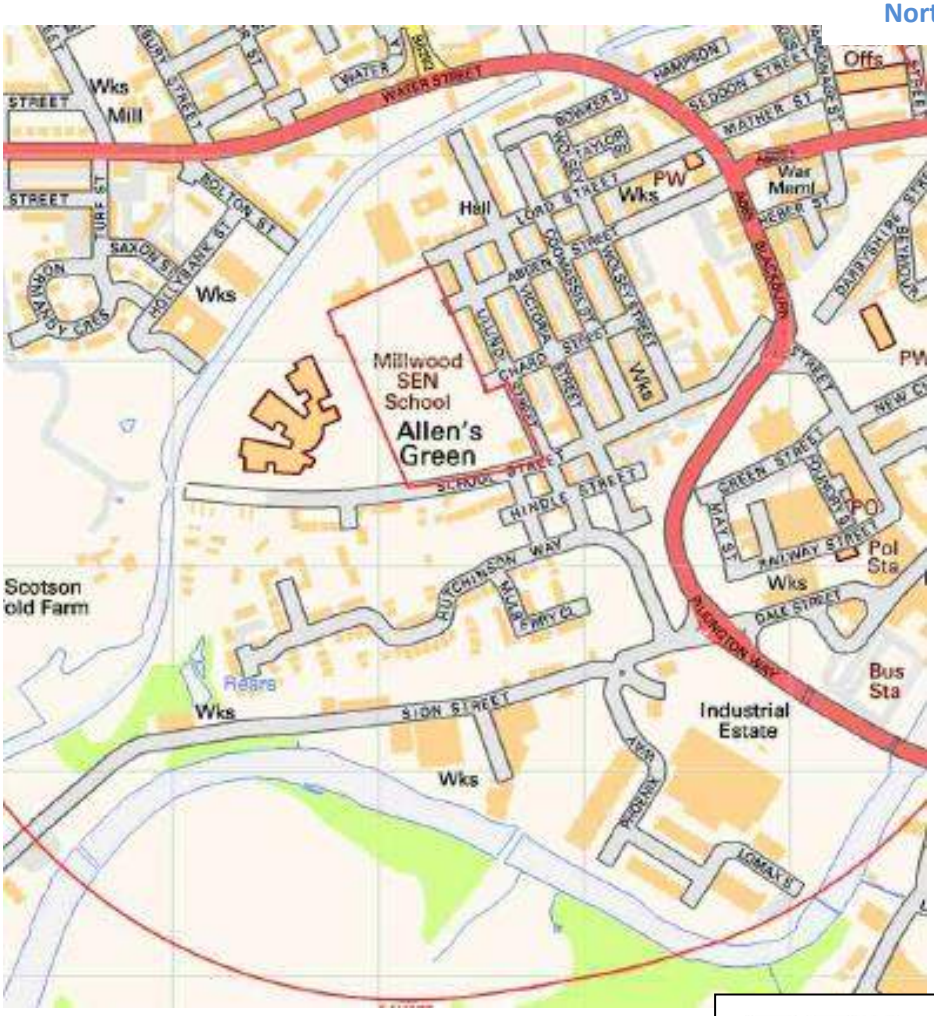


Historical Map

Dated: 1987/92

Original Scale: 1:1,250

North



Historical Map

Dated: 2014

Original Scale: 1:10,000

APPENDIX VI

REC EXPLORATORY LOGS

Trial Pit Log

Trialpit No **TP101** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
						MADE GROUND: Yellowish grey sandy GRAVEL. Gravel is fine to coarse sub angular to sub rounded of limestone.
0.30 - 0.40	ES		0.25			MADE GROUND: Red sandy GRAVEL. Gravel is angular fine to coarse of brick.
						Between 0.25m bgl and 0.60m bgl: Many cobbles of brick and concrete beams with rebar and wiring.
			0.60			MADE GROUND: Firm black brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
1.00 - 1.10	D					
1.20 - 1.30	ES		1.20			Red slightly gravelly slightly silty SAND. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone. [GLACIAL TILL]
			2.50			End of pit at 2.50 m

Remarks: No groundwater encountered.
Trial pit terminated at 2.50m bgl.

Stability: Collapse from 0.5m.

Trial Pit Log

Trialpit No **TP102** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Soft black slightly gravelly slightly sandy clay (Topsoil). Gravel is fine to coarse, sub angular to sub rounded of brick.
0.40 - 0.50	ES		0.40			MADE GROUND: Blackish red slightly sandy GRAVEL. Gravel is fine to coarse sub angular to sub rounded of brick. *Between 0.40m bgl and 2.0m bgl: Cobbles of brick and brick wall.*
2.00 - 2.10	ES		2.00			Orangeish grey slightly gravelly sandy CLAY interbedded with sand. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone. [GLACIAL TILL]
2.50 - 2.60	D		2.50			End of pit at 2.50 m

Remarks: No groundwater encountered.
Trial pit terminated at 2.50m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP103** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.20	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: Blackish brown slightly gravelly slightly clayey sand (Topsoil). Gravel is fine to medium sub angular to sub rounded of brick and concrete.
0.30 - 0.40	ES					MADE GROUND: Greyish black slightly gravelly slightly sandy clay. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
			0.40			MADE GROUND: Black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub rounded of brick and concrete.
0.50 - 0.60	D					*Between 0.40m bgl and 0.45m bgl: Slight hydrocarbon odour.*
0.80 - 0.90	ES		0.80			Firm orange brown sandy gravelly CLAY. Gravel is sub angular fine to medium of mudstone. [GLACIAL TILL]
		HVP=44				
			3.00			Brown slightly silty slightly gravelly SAND. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone. [GLACIAL TILL]
			3.20			End of pit at 3.20 m

1 2 3 4

Remarks: Groundwater encountered at 3.0m bgl.
Trial pit terminated at 3.20m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP104** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Black brown gravelly sandy CLAY (Topsoil). Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
0.30 - 0.40	ES		0.30			
			0.40			MADE GROUND: Blackish red slightly gravelly slightly sandy CLAY. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
0.50 - 0.60	ES					*Between 0.30m bgl and 0.40m bgl: Cobbles of brick and concrete. Concrete beams with wire/rebar (black staining on bricks).*
						MADE GROUND: Redish brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of brick.
			0.80			Firm orangeish grey slightly gravelly slightly sandy CLAY. Gravel is fine to coarse sub angular to rounded of sandstone and granite. [GLACIAL TILL]
1.00 - 1.10	D					*Between 0.80m bgl and 2.5m bgl: Cobbles of sandstone.*
		HVP=52				
			2.50			Brown slightly silty SAND. [GLACIAL TILL]
			3.00			End of pit at 3.00 m

1 2 3 4

Remarks: No groundwater encountered.
Trial pit terminated at 4.0m bgl.

Stability: Slight collapse at base.

Trial Pit Log

Trialpit No: **TP105-A**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 0.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Black red slightly sandy GRAVEL. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
						Between 0.0m and 0.50m bgl: Cobbles of sub angular concrete and brick. boulders sub angular of concrete. Rebar and wire within bricks .
			0.50			MADE GROUND: Obstruction - concrete .
			0.55			End of pit at 0.50 m

1
2
3
4

Remarks: No groundwater encountered.
Trial pit terminated at 0.50m bgl due to obstruction.

Stability:

Trial Pit Log

Trialpit No **TP105-B** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Blackish red slightly clayey slightly sandy GRAVEL. Gravel is fine to coarse sub angular to sub rounded of brick, sandstone, granite and concrete
						Between 0.0m and 0.40m bgl: Cobbles of brick and concrete (Brick wall).
0.40 - 0.50	ES		0.40			MADE GROUND: Soft black slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
			1.20			Firm brown orangeish grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub rounded of sandstone. [GLACIAL TILL]
						Between 1.2m bgl and 2.5m bgl: Cobbles of rounded sandstone.
1.50 - 1.60	D	HVP=22				*Between 1.5m bgl and 2.5m bgl: Becoming Soft.*
			2.50			Brown slightly silty SAND. [GLACIAL TILL]
			3.00			End of pit at 3.00 m

1 2 3 4

Remarks: Groundwater encountered at 3.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Slight collapse at base.

Trial Pit Log

Trialpit No **TP106** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.40 - 0.50	ES					MADE GROUND: Blackish brown gravelly clayey SAND. (Topsoil). Gravel is fine to coarse sub angular to sub rounded of brick and concrete. *Between 0m and 0.90m bgl: Cobbles of brick.*
			0.90			
1.00 - 1.10	ES					Redish orange slightly gravelly slightly clayey SAND. [GLACIAL TILL]
2.00 - 2.10	D					
			3.00			End of pit at 3.00 m

1 2 3 4

Remarks: Groundwater encountered at 3.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Slight collapse at base.

Trial Pit Log

Trialpit No **TP107**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.20 - 0.30	ES					MADE GROUND: Blackish brown slightly clayey slightly gravelly SAND (Topsoil). Gravel is fine to coarse sub angular to sub rounded of brick and concrete. *Between 0.2m bgl and 1.5m bgl: Many cobbles and boulders of brick and concrete.*
1.50 - 1.60	ES		1.50			Yellow slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone. [GLACIAL TILL]
			2.00			Brownish red silty SAND. [GLACIAL TILL]
2.50 - 2.60	D		2.50			End of pit at 2.50 m

Remarks: Groundwater encountered at 2.5m bgl.
Trial pit terminated at 2.5m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP108**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 1.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.10			MADE GROUND: Brown clayey gravelly SAND (Topsoil).
0.40 - 0.50	ES					MADE GROUND: Cobbles and boulders – Angular of concrete, brick, relict scrap metal rods, pipes, concrete slabs, horizontal wall.
			1.00			MADE GROUND: Brownish grey silty sand.
			1.45			MADE GROUND: Obstruction - concrete.
			1.50			End of pit at 1.50 m

1
2
3
4

Remarks: No groundwater encountered.
Trial pit terminated at 1.5m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP109** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.10			MADE GROUND: Black slightly gravelly slightly clayey SAND (Topsoil). Gravel is fine to coarse sub angular to sub rounded of concrete and brick.
0.40 - 0.50	ES					MADE GROUND: Black slightly gravelly SAND (Topsoil). Gravel is fine to coarse sub angular to sub rounded of brick, slag and concrete. *Between 0.10m bgl and 0.50m bgl: Cobbles sub angular of slag and brick.*
			0.50			Redish grey slightly clayey slightly gravelly SAND. Gravel is fine to coarse sub angular to sub rounded of sandstone. [GLACIAL TILL]
1.00 - 1.10	D					
1.00 - 1.10	ES					
			2.00			Brownish red clayey SAND. [GLACIAL TILL]
			2.50			End of pit at 2.50 m

Remarks: Groundwater encountered at 2.5m bgl.
Trial pit terminated at 2.5m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No
TP110-A
Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 0.06	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
			0.06			MADE GROUND: Pink grey CONCRETE slab.
						End of pit at 0.06 m

Remarks: No groundwater encountered.
Trial pit terminated at 0.60m bgl due to obstruction.

Stability:

Trial Pit Log

Trialpit No **TP110-B** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 1.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Blackish brown slightly gravelly slightly clayey SAND (Topsoil). Gravel is fine to coarse sub angular to sub rounded of brick.
			0.20			MADE GROUND: Brownish black slightly silty SAND. *Between 0.20m bgl and 0.6m bgl: Many cobbles sub angular of brick, scrap metal, polystyrene, glass, relict and wiring.*
0.40 - 0.50	ES					
			0.60			MADE GROUND: Black gravelly SAND. Gravel is fine to coarse angular of ash and clinker.
			1.00			MADE GROUND: Pink grey CONCRETE slab.
			1.05			End of pit at 1.00 m

Remarks: No groundwater encountered.
Trial pit terminated at 1.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP111**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.50 - 0.60	ES					MADE GROUND: Black gravelly clayey SAND. Gravel is fine to coarse angular to sub rounded of brick, concrete,metal, relict rods and pipes.
			2.00			MADE GROUND: Pink grey CONCRETE slab.
			2.05			End of pit at 2.00 m

1 2 3 4

Remarks: No groundwater encountered.
Trial pit terminated at 2.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP112**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.20	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.00 - 0.50	D					MADE GROUND: Black gravelly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of brick and concrete.
0.30 - 0.40	ES					
			0.50			MADE GROUND: Fine to coarse black slightly gravelly SAND. Gravel is fine to coarse angular of ash and clinker.
			0.80			Orange brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse angular to sub angular of mudstone and coal. [GLACIAL TILL]
1.20 - 1.30	ES					
1.50 - 1.60	D					
		HVP=68	3.00			Firm orangeish brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular to sub angular of mudstone and coal. [GLACIAL TILL]
			3.20			End of pit at 3.20 m

1 2 3 4

Remarks: No groundwater encountered.
Trial pit terminated at 3.20m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP113** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: Black slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of brick.
0.40 - 0.50	ES		0.40			
0.50 - 1.00	D					MADE GROUND: Black slightly gravelly SAND. Gravel is fine to coarse angular of slag, ash and clinker.
1.50 - 1.60	ES		1.50			Orangeish brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse angular to sub angular of mudstone and coal. [GLACIAL TILL]
2.50 - 2.60	D	HVP=62	2.50 2.55			Firm orangeish brown gravelly sandy CLAY. Gravel is fine to coarse angular to sub angular of mudstone and coal. [GLACIAL TILL]
						End of pit at 2.50 m

1 2 3 4

Remarks: No groundwater encountered.
Trial pit terminated at 2.50m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP114**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 23/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.50 - 0.60	ES		0.50			MADE GROUND: Blackish brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of brick.
						MADE GROUND: Fine to coarse black slightly gravelly SAND. Gravel is fine to coarse angular of slag, ash and clinker.
2.00 - 2.10	ES	HVP=76	2.00			Stiff greyish black slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and coal. [GLACIAL TILL]
3.00 - 3.10	D		3.00			End of pit at 3.00 m

1 2 3 4

Remarks: Groundwater encountered at 3.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP115** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.10			MADE GROUND: ASPHALT.
			0.30			MADE GROUND: Yellowish grey slightly sandy GRAVEL. Gravel is fine to coarse sub angular of limestone.
0.50 - 0.60	ES		0.50			MADE GROUND: Pinkish brown angular cobbles and boulders of concrete (wall foundations).
1.00	ES		1.00			MADE GROUND: Orangeish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular of brick and clay pipe fragments.
1.50	ES					Grey clayey gravelly SAND. Gravel is fine to coarse angular to sub angular of sandstone and mudstone. [GLACIAL TILL]
2.00 2.00 - 2.10	ES D					*Between 1.0m bgl and 1.2m bgl: Slight hydrocarbon odour.*
			2.50			End of pit at 2.50 m

1 2 3 4

Remarks: Groundwater encountered at 2.0m bgl.
Trial pit terminated at 2.50m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP116** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.30 - 0.40	ES					MADE GROUND: Blackish brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse angular to sub rounded of asphalt, brick and concrete.
0.80 - 0.90	ES		0.80			MADE GROUND: Brownish orange sandy CLAY. Gravel is fine to coarse angular to sub rounded of brick, concrete, wood and plastic.
			1.00			MADE GROUND: Fine to coarse black slightly gravelly slightly clayey SAND. Gravel is fine to coarse angular of slag, ash, clinker, plastic and wood. *Between 1.00m bgl and 1.50m bgl: Boulders sub angular to sub rounded of concrete. Many cobbles, sub angular of brick.*
1.50 - 1.60	ES		1.50			MADE GROUND: Stiff grey brown gravelly sandy CLAY. Gravel is fine to coarse angular to sub rounded of concrete and brick. *Between 1.50m bgl and 2.0m bgl: Trial pit collapse.*
2.00 - 2.10	D	HVP=82	2.00			End of pit at 2.00 m

Remarks: Groundwater encountered at 1.0m bgl.
Trial pit terminated at 1.0m and 1.5m bgl.

Stability: Collapse from 1.0m

Trial Pit Log

Trialpit No **TP117** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
0.40 - 0.50	ES					MADE GROUND: Blackish brown slightly gravelly clayey SAND. Gravel is fine to coarse angular to sub rounded of concrete and brick.
1.50 - 1.60	ES		1.50			Brown slightly clayey slightly gravelly SAND. [GLACIAL TILL]
2.50 - 2.60	D	HVP=42	2.50			Firm orangeish grey slightly gravelly sandy CLAY. Gravel is fine sub angular of mudstone. [GLACIAL TILL]
			3.00			End of pit at 3.00 m

1 2 3 4

Remarks: Groundwater encountered at 2.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP118**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
						MADE GROUND: ASPHALT. *Between 0.05m bgl and 0.25m bgl: Many cobbles and boulders, sub angular of pink concrete.*
			0.20			MADE GROUND: Blackish red slightly sandy GRAVEL. Gravel is fine to coarse angular to sub rounded of brick and asphalt.
0.50 - 0.60	ES					
			0.70			Brownish grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone
1.00 - 1.10	ES	HVP=120	1.00			Very stiff black gravelly CLAY. Gravel is medium sub angular of mudstone and sandstone. [GLACIAL TILL]
			1.50			Brown slightly clayey fine to medium SAND. [GLACIAL TILL]
			1.70			Orangeish grey brown slightly sandy CLAY. [GLACIAL TILL]
2.00 - 2.10	D					
			2.50			End of pit at 2.50 m

1 2 3 4

Remarks: Groundwater encountered at 2.0m bgl.
Trial pit terminated at 2.5m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP119** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
						MADE GROUND: Black gravelly fine to medium SAND. Gravel is fine to coarse angular to sub rounded of brick, asphalt, concrete and wood.
						Between 0.05m bgl and 0.40m bgl: Cobbles and boulders sub angular of white concrete and brick.
			0.50			MADE GROUND: Orangeish brown slightly gravelly clayey SAND. Gravel is fine to coarse angular to sub rounded of brick, asphalt, concrete and wood.
0.60 - 0.70	ES					
1.20 - 1.30	ES		1.20			Very stiff black becoming brownish orange mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular of mudstone and sandstone. [GLACIAL TILL]
1.50 - 1.60	D					*Between 1.20m bgl and 1.50m bgl: Slight hydrocarbon odour.*
1.50 - 1.60	ES					
		HVP=92				
			3.00			End of pit at 3.00 m

Remarks: Groundwater encountered at 2.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP120** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
						MADE GROUND: Grey slightly gravelly SAND. Gravel is fine to coarse sub angular of limestone.
0.40 - 0.50	ES		0.40			MADE GROUND: Greyish orange slightly gravelly slightly sandy CLAY. Gravel is fine to coarse angular of shale, flint and coal fragments.
0.80 - 0.90	ES		0.80			MADE GROUND: Black slightly gravelly SAND. Gravel is fine to coarse angular of slag, ash and clinker.
			1.50			Very stiff black becoming orangish grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular of mudstone and sandstone. [GLACIAL TILL]
						Between 1.50m bgl and 3.0m bgl: Slight hydrocarbon odour.
		HVP=86				
3.00 - 3.10	D		3.00			End of pit at 3.00 m

1 2 3 4

Remarks: Groundwater encountered at 3.0m bgl.
Trial pit terminated at 3.0m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP121** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 2.50	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
						MADE GROUND: Orangeish brown slightly gravelly slightly clayey SAND. Gravel is fine to coarse angular to sub rounded of brick, asphalt, concrete and wood.
						Between 0.05m bgl and 0.40m bgl: Cobbles and boulders sub angular of white concrete.
0.40 - 0.50	ES					
0.50 - 0.60	D					
			1.20			MADE GROUND: Stiff black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub rounded of brick, asphalt, concrete and wood.
						Between 1.20m bgl and 1.80m bgl: Slightly hydrocarbon odour.
1.80 - 3.20	ES		1.80			Grey slightly gravelly slightly clayey SAND. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone.
		HVP=56	2.00			[GLACIAL TILL]
						Firm orangeish grey slightly sandy slightly gravelly CLAY. Gravel is fine sub angular of mudstone and coal. [GLACIAL TILL]
			2.50			End of pit at 2.50 m

Remarks: No groundwater encountered.
Trial pit terminated at 2.50m bgl.

Stability: Stable.

Trial Pit Log

Trialpit No **TP122** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: - Level:	Date 24/03/2015
Location: Radcliffe		Dimensions (m): Depth 3.00	Scale 1:20
Client: Galiford Try Building and Bury MBC			Logged C. Radiven

Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth	Type	Results				
			0.05			MADE GROUND: ASPHALT.
						MADE GROUND: Black slightly gravelly SAND. Gravel is fine to coarse angular to sub rounded of brick, concrete and plastic.
0.50 - 0.60	ES		0.50			MADE GROUND: Black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub rounded of brick, concrete and plastic.
						Between 0.50m bgl and 0.8m bgl: Slight hydrocarbon odour.
0.80 - 0.90	ES		0.80			MADE GROUND: Brownish orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular of brick.
1.50 - 1.60	D		1.50			MADE GROUND: Black slightly gravelly SAND. Gravel is fine to coarse angular of slag, ash and clinker.
			2.20			Very stiff black slightly sandy CLAY. [GLACIAL TILL]
		HVP=86	2.50			Very stiff brown becoming orangeish grey sandy gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of sandstone, mudstone and coal. [GLACIAL TILL]
			3.00			End of pit at 3.00 m

1 2 3 4

Remarks: No groundwater encountered.
Trial pit terminated at 3.0m bgl.

Stability: Stable.

Borehole Log

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Borehole No. **WS101** Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05			MADE GROUND: ASPHALT. *Between 0m and 0.50m bgl: Cobbles of limestone.*
		0.20 - 0.30	ES		0.25			MADE GROUND: Yellowish brown slightly gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to coarse of limestone. *Between 0.20m bgl and 0.60m bgl: Slight odour of hydrocarbon.*
		0.60 - 0.70	ES		0.60			MADE GROUND:Firm black gravelly sandy clay . Gravel is sub angular fine to medium of brick, asphalt and sandstone.
	▼	1.00	SPT	N=3 (1,1/1,1,0,1)	1.00			MADE GROUND: Black slightly gravelly SAND. Gravel is angular to sub angular fine to coarse of brick, sandstone and mudstone.
		1.20 - 1.30	ES		1.10			Loose becoming medium dense yellowish brown clayey fine to medium SAND. [GLACIAL TILL]
	▼	2.00 2.00 - 2.10	SPT ES	N=11 (1,2/2,3,3,3)	2.00			
		3.00	SPT	N=16 (2,3/4,4,4,4)	2.80 3.00			Medium sense greyish brown slightly clayey slightly gravelly SAND. Gravel is sub angular fine to coarse of mixed lithologies. [GLACIAL TILL]
					3.00			Very stiff grey CLAY. [GLACIAL TILL]
		3.50 - 3.60	ES		3.20			Medium dense brown loose slightly gravelly slightly clayey fine to medium SAND. Gravel is sub angular fine to medium of mudstone and sandstone. [GLACIAL TILL]
					3.60			Brownish grey slightly silty slightly gravelly CLAY. Gravel is sub angular fine to medium of mudstone. [GLACIAL TILL]
		4.00	SPT	N=31 (5,6/7,8,8,8)	3.80 4.00			Very stiff high strength greyish brown slightly gravelly sandy Clay. Sand is fine to medium. Gravel is sub angular to sub rounded fine to coarse of mudstone. [GLACIAL TILL]
		5.00	SPT	N=23 (5,5/5,5,6,7)	5.00			

Continued on next sheet

Remarks

Groundwater encountered at 1.0m bgl and 2.0m bgl.

Borehole Log

Borehole No. **WS101**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45			End of borehole at 5.45 m

Remarks
Groundwater encountered at 1.0m bgl and 2.0m bgl.

Borehole Log

Borehole No. **WS102**

Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20 - 0.30	ES					MADE GROUND: Black gravelly sandy CLAY (Topsoil). Gravel is angular to sub rounded fine to coarse of brick, asphalt, tiles and sandstone. *Between 0.05m bgl and 0.60m bgl: Cobbles of concrete.*
					0.60			MADE GROUND: Dark brown slightly sandy slightly gravelly CLAY. Gravel is sub angular fine to medium of sandstone and mudstone.
		0.80 - 0.90	ES					
		1.00	SPT	N=10 (1,2/2,2,3,3)	1.00			
		1.50 - 1.60	ES					
		2.00	SPT	N=14 (2,2/3,3,4,4)	2.00			*Between 2.0m bgl and 2.2m bgl: Cobbles of bonded slag.*
	▼	2.20 - 2.40	ES		2.20			Medium dense brown slightly clayey slightly gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to medium of sandstone and mudstone. [GLACIAL TILL]
		3.00 3.00 - 3.10	SPT ES	N=18 (1,1/3,3,5,7)	3.00			
	▼	4.00	SPT	N=17 (2,2/3,5,4,5)	4.00			
					4.80			Stiff grey CLAY.
		5.00	SPT	N=31 (6,6/7,8,8,8)	5.00			

Continued on next sheet

Remarks

Groundwater encountered at 2.20m bgl and 4.0m bgl.

Borehole Log

Borehole No. **WS102**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.00			Very stiff high strength brownish grey slightly silty slightly gravelly CLAY. Gravel is sub angular fine to medium of mudstone. [GLACIAL TILL]
					5.45			End of borehole at 5.45 m

Remarks

Groundwater encountered at 2.20m bgl and 4.0m bgl.

Borehole Log

Borehole No. **WS103** Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30 - 0.40	ES					MADE GROUND: Dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to coarse of brick, asphalt, sandstone and granite.
								Between 0.30m bgl and 0.70m bgl: Cobbles of sandstone and brick.
					0.70			
		0.80	ES					MADE GROUND: Black clayey gravelly SAND. Gravel is sub angular to sub rounded fine to coarse of asphalt.
		1.00	SPT	N=11 (2,3/2,2,3,4)	1.00			
					1.20			
		1.30 - 1.40	ES					Medium dense brownish red slightly clayey slightly gravelly fine to medium SAND. Gravel is angular to sub angular fine of mudstone and coal. [GLACIAL TILL]
	▼	2.00	SPT	N=8 (1,1/1,2,2,3)	2.00			
		2.00 - 2.10	ES					*Between 2.00m bgl and 4.0m bgl: Becoming Loose.*
	▼	3.00	SPT	N=8 (1,1/2,2,2,2)	3.00			
		4.00	SPT	N=20 (3,4/4,5,5,6)	4.00			*Between 4.00m bgl and 4.40m bgl: Becoming Medium Dense.*
					4.40			Firm grey slightly gravelly slightly silty CLAY. Gravel is angular to sub angular fine to coarse of coal and mudstone. [GLACIAL TILL]
	▼	5.00	SPT	N=19 (3,4/5,5,4,5)	5.00			

Continued on next sheet

Remarks
Groundwater encountered at 2.0m bgl, 3.0m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS103**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					5.00			Stiff high strength brown slightly clayey slightly gravelly SAND. Gravel is sub angular to sub rounded fine to medium of sandstone. [GLACIAL TILL]
					5.45			End of borehole at 5.45 m

6
7
8
9
10

Remarks
Groundwater encountered at 2.0m bgl, 3.0m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS104**

Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.10 - 0.20	ES					MADE GROUND: ASPHALT.
					0.20			MADE GROUND: Red slightly gravelly SAND. Gravel is angular fine to coarse of brick and concrete.
					0.40			*Between 0.20m bgl and 0.40m bgl: Cobbles of brick, slag, tiles.*
		0.50 - 0.60	ES					Yellowish brown slightly sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone, limestone, and mudstone. [GLACIAL TILL]
					0.80			
		1.00	SPT	N=9 (2,1/2,2,2,3)	1.00			Medium dense brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is sub angular to sub rounded fine to coarse of sandstone [GLACIAL TILL]
		1.00 - 1.10	ES					*Between 1.2m bgl and 3.5m bgl: Becoming laminated sand with coal fragments.*
	▼	2.00	SPT	N=12 (2,1/3,3,3,3)	2.00			
		2.00 - 2.10	ES					
		3.00	SPT	N=26 (3,4/6,6,7,7)	3.00			
					3.50			Medium dense brown slightly silty slightly gravelly fine to medium SAND. Gravel is sub angular fine to medium of mudstone and sandstone. [GLACIAL TILL]
		4.00	SPT	N=13 (3,3/3,3,4,3)	4.00			
	▼	5.00	SPT	N=29 (6,7/7,8,7,7)	5.00			

Continued on next sheet

Remarks

Groundwater encountered at 2.0m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS104**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45			End of borehole at 5.45 m

6

7

8

9

10

Remarks
Groundwater encountered at 2.0m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS105**

Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.10 - 0.20	ES		0.10			MADE GROUND: Black slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to coarse of brick and sandstone. Redish grey sandy GRAVEL. Gravel is angular to sub rounded fine to coarse of brick, concrete and sandstone. *Between 0.10m bgl and 0.80m bgl: Cobbles of brick.*
					0.80			Greyish orange slightly clayey slightly gravelly fine to medium SAND. Gravel is angular to sub rounded fine to coarse of coal, sandstone and granite. [GLACIAL TILL]
		1.00	SPT	N=12 (2,2/3,3,3,3)	1.00			
		1.00 - 1.10	ES					
	▼	2.00	SPT	N=7 (1,2/1,2,2,2)	2.00			
		2.10 - 2.20	ES					
		3.00	SPT	N=17 (2,2/2,2,2,11)	3.00			
					3.40			Very stiff grey CLAY.
					3.50			Yellow slightly silty fine SAND. [GLACIAL TILL]
					3.80			Medium strength stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of mudstone. [GLACIAL TILL]
	▼	4.00	SPT	N=10 (3,2/2,3,2,3)	4.00			
		5.00	SPT	N=50 (3,5/50 for 285mm)	5.00			

Continued on next sheet

Remarks

Groundwater encountered at 2.10m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS105**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 18/03/2015 - 18/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.00			Very stiff very high strength brown slightly clayey fine to medium SAND. [GLACIAL TILL]
					5.45			End of borehole at 5.45 m

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Remarks

Groundwater encountered at 2.10m bgl and 5.0m bgl.

Borehole Log

Borehole No. **WS106**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.10 - 0.20	ES		0.20			MADE GROUND: Black slightly sandy slightly gravelly CLAY (Topsoil). Gravel is angular to sub rounded fine to coarse of brick and sandstone. *Between 0.15m bgl and 0.60m bgl: Cobbles of brick.*
		0.60 - 0.70	ES		0.60			MADE GROUND: Redish grey slightly sandy GRAVEL. Gravel is angular to sub rounded fine to coarse of brick and sandstone.
					0.80			MADE GROUND: Grey slightly clayey slightly sandy GRAVEL. Gravel is sub angular to sub rounded fine to coarse of limestone, sandstone and granite.
		1.00 1.00 - 1.10	SPT ES	N=14 (2,2/3,3,4,4)	1.00			MADE GROUND: Yellowish brown sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to coarse of brick, granite and sandstone.
					1.40			Orangeish brown slightly gravelly slightly clayey SAND. Gravel is sub angular fine to medium of mudstone and sandstone. [GLACIAL TILL]
	▼	2.00 2.00 - 2.10	SPT ES	N=9 (2,2/2,2,2,3)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming Medium Dense.*
		3.00	SPT	N=8 (2,2/2,2,2,2)	3.00			*Between 3.0m bgl and 4.0m bgl: Becoming Loose.*
	▼				3.70			Yellowish grey clayey slightly gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to coarse of mudstone, coal and sandstone. [GLACIAL TILL]
		4.00	SPT	N=50 (6,7/50 for 295mm)	4.00			*Between 4.0m bgl and 4.45m bgl: Becoming Very dense.*
					4.45			End of borehole at 4.45 m

1 2 3 4 5

Remarks
Groundwater encountered at 2.0m bgl and 3.5m bgl.
Refusal met at 4.45 bgl.

Borehole Log

Borehole No. **WS107** Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		0.20 - 0.30	ES		0.20			MADE GROUND: Brown gravelly clayey fine to medium SAND (Topsoil). Gravel is angular to sub rounded fine to medium of brick and sandstone.	
					0.60			MADE GROUND: Black and redish grey slightly sandy GRAVEL. Gravel is angular to sub angular fine to coarse of brick, limestone and asphalt. *Between 0.50m bgl and 0.60m bgl: Cobbles of concrete.*	
		0.80 - 0.90	ES					MADE GROUND: Greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to coarse of sandstone limestone and brick.	
	▼	1.00	ES		1.00				1
		1.00	SPT	N=14 (2,3/3,3,4,4)	1.00			Medium dense orangeish brown slightly clayey gravelly fine to medium SAND. Gravel is angular to sub rounded fine to medium of mudstone and coal. [GLACIAL TILL]	
								Between 1.6 and 2.8: Becoming gravelly.	
	▼	2.00	SPT	N=15 (2,3/3,4,4,4)	2.00				2
		2.00 - 2.10	ES						
					2.80			Very stiff high strength brownish orange slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to coarse of coal, sandstone and mudstone. [GLACIAL TILL]	
	▼	3.00	SPT	N=21 (3,3/4,5,6,6)	3.00				3
					3.40			Yellow brown slightly clayey slightly gravelly SAND. Gravel is angular to sub rounded fine to medium of mudstone, coal and sandstone. [GLACIAL TILL]	
	▼	4.00	SPT	N=30 (6,6/7,7,8,8)	4.00			*Between 4.0m bgl and 5.45m bgl: Becoming Dense.*	4
		5.00	SPT	N=38 (5,6/6,9,12,11)	5.00				5

Continued on next sheet

Remarks
Groundwater encountered at 1.0m bgl, 2.0m bgl 3.0m bgl and 4.0m bgl.

Borehole Log

Borehole No. **WS107**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45			End of borehole at 5.45 m

Remarks

Groundwater encountered at 1.0m bgl, 2.0m bgl 3.0m bgl and 4.0m bgl.

Borehole Log

Borehole No. **WS108**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 0.40	ES		0.20			MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to medium of brick and sandstone.
								MADE GROUND: Blackish grey slightly clayey slightly gravelly SAND. Gravel is angular to sub rounded fine to coarse of sandstone, mudstone and brick.
								Between 0.80m bgl and 1.3m bgl: Cobbles of brick and concrete.
		1.00	SPT	N=6 (4,2/2,1,1,2)	1.00			
	▼	1.20 - 1.30	ES		1.30			Very stiff orownish orange sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of limestone, sandstone and mudstone. [GLACIAL TILL]
	▼	2.00	SPT	N=15 (3,3/3,3,4,5)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming gravelly, becoming stiff medium strength.*
								Between 2.8m bgl and 3.45m bgl:
		2.50 - 2.60	ES					
		3.00	SPT	N=50 (2,3/50 for 275mm)	3.00			*Between 3.0m bgl and 3.45m bgl: Becoming Very stiff very high strength.*
					3.45			End of borehole at 3.45 m

1 2 3 4 5

Remarks
Groundwater encountered at 1.3m bgl and 2.0m bgl.
Refusal met at 3.45.

Borehole Log

Borehole No. **WS109-A**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		1.00	SPT	N=34 (3,1/0,0,4,30)	1.00			MADE GROUND: Redish brown slightly sandy fine to coarse GRAVEL. *Between 0.0m and 1.45: Many cobbles of brick and concrete.*
					1.45			End of borehole at 1.45 m

Remarks
No groundwater encountered.
Sandstone cobble encountered at 1.45, hole relocated.

Borehole Log

Borehole No. **WS109-B**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05			MADE GROUND: Brown slightly sandy slightly gravelly CLAY. Gravel is angular to sub rounded fine to medium of brick and sandstone.
		0.20 - 0.30	ES					MADE GROUND: Red slightly sandy GRAVEL. Gravel is angular fine to coarse of brick and tiles.
								Between 0.0m and 1.1m bgl: Cobbles of sub angular brick and tiles.
		1.00	SPT	N=4 (1,1/1,1,1,1)	1.00			
					1.10			MADE GROUND: Brownish red gravelly fine to medium SAND. Gravel is angular fine to coarse of brick and concrete.
		1.20 - 1.30	ES					
					1.45			Yellowish brown slightly silty fine to medium SAND. [GLACIAL TILL]
					1.60			Orangeish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of sandstone and mudstone. [GLACIAL TILL]
		1.70 - 1.80	ES					
	▼				1.90			Medium dense brown clayey gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		2.00	SPT	N=12 (3,3/3,3,3,3)	2.00			
					2.50			Brown slightly silty slightly gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to coarse of mudstone and sandstone. [GLACIAL TILL]
					2.70			Very stiff high strength brown slightly sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		3.00	SPT	50 (10,12/50 for 125mm)	3.00			
					3.45			End of borehole at 3.45 m

Remarks

Groundwater encountered at 2.0m bgl.

Refusal met at 3.45m bgl.

Borehole Log

Borehole No. **WS110**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 19/03/2015 - 19/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.20			MADE GROUND: Yellowish brown slightly sandy slightly gravelly clay. Gravel is angular to sub rounded fine to coarse of brick, sandstone and coal.
		0.40 - 0.50	ES					MADE GROUND: Blackish red slightly clayey slightly gravelly SAND. Gravel is angular fine to coarse of brick.
					0.70			
		0.80	ES		0.80			MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to medium of brick.
	▼	1.00	SPT	N=1 (1,0/0,1,0,0)	1.00			Very soft extremely low strength to stiff blackish becoming greyish orange brown sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		1.20 - 1.30	ES					*Between 0.80m bgl and 3.0m bgl: Interbedded sands.*
		2.00	SPT	N=12 (2,3/2,3,3,4)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming stiff medium strength.*
	▼	3.00	SPT	N=18 (3,4/4,4,5,5)	3.00			Very stiff high strength brown slightly slightly sandy gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		4.00	SPT	N=50 (8,8/50 for 295mm)	4.00			*Between 4.0m bgl and 4.45m bgl: Becoming very stiff very high strength.*
					4.40			Yellow SANDSTONE (possible cobble). [GLACIAL TILL]
					4.45			End of borehole at 4.45 m

Remarks

Groundwater encountered at 1.0m bgl and 3.0m bgl.

Refusal met at 4.45m bgl.

Borehole Log

REC Resource & Environmental Consultants Ltd

Borehole No. **WS111** Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05			MADE GROUND: ASPHALT.
		0.20 - 0.30	ES		0.15			MADE GROUND: Red sandy GRAVEL. Gravel is angular fine to coarse of brick.
					0.50			MADE GROUND: Fine to medium brown slightly clayey slightly gravelly SAND. Gravel is angular fine to coarse of brick and concrete.
		0.60 - 0.70	ES					Firm becoming stiff yellowish becoming orangeish brown slightly sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		1.00	SPT	N=6 (1,1/2,1,1,2)	1.00			*Between 1.0m bgl and 2.0m bgl: Becoming Firm low strength.*
		1.20 - 1.30	ES					
		2.00	SPT	N=12 (2,3/3,2,3,4)	2.00			*Between 2.0m bgl and 4.0m bgl: Becoming Stiff medium strength.*
		3.00	SPT	N=11 (3,6/3,2,2,4)	3.00			
	▼							
		3.70 - 3.80	ES		3.70			Greyish black slightly clayey slightly gravelly SAND. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		4.00	SPT	N=50 (6,8/50 for 290mm)	4.00			Very stiff very high strength grey clay. [GLACIAL TILL]
					4.00			
					4.45			End of borehole at 4.45 m

1 2 3 4 5

Remarks
Groundwater encountered at 3.5m bgl.
Refusal met at 4.45m bgl.

Borehole Log

Borehole No. **WS112**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05			MADE GROUND: ASPHALT.
								MADE GROUND: Red slightly sandy GRAVEL. Gravel is angular fine to coarse of brick.
								Between 0.50m bgl and 1.0m bgl: Cobbles of brick.
		1.00 1.00 - 1.10	SPT ES	N=4 (1,1/1,1,1,1)	1.00 1.00			Firm low strength yellowish grey slightly sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
					1.30			Greyish brown slightly sandy gravelly CLAY. Gravel is sub angular medium to coarse of mudstone. [GLACIAL TILL]
		1.50 - 1.60	ES					
	▼	2.00 2.00 - 2.10	SPT ES	N=11 (2,2/2,3,3,3)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming STiff medium strength.*
		3.00	SPT	50 (10,11/50 for 200mm)	3.00			*Between 3.0m bgl and 3.45m bgl: Becoming Very stiff very high strength.*
					3.42			Very stiff grey CLAY.
					3.45			End of borehole at 3.45 m

Remarks
Groundwater encountered at 2.0m bgl.
Refusal met at 3.45m bgl.

Borehole Log

Borehole No. **WS113**

Sheet 1 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20 - 0.30	ES					MADE GROUND: Black gravelly clayey SAND (Topsoil). Gravel is angular to sub angular fine to coarse of granite, brick and concrete.
		0.50 - 0.60	ES		0.40			MADE GROUND: Black slightly gravelly SAND. Gravel is angular fine to coarse of ash and clinker.
					0.90			*Between 0.80m bgl and 0.90m bgl: Cobbles of slag and clinker.*
		1.00 1.00 - 1.10	SPT ES	N=9 (1,0/8,0,0,1)	1.00			Stiff medium strength black becoming orange sandy gravelly CLAY. Gravel is sub angular to sub rounded fine to medium of sandstone and mudstone. [GLACIAL TILL]
	▼	2.00 2.00 - 2.10	SPT ES	N=11 (2,2/2,3,3,3)	2.00			
					2.70			Brown slightly slightly clayey gravelly fine to medium SAND. Gravel is sub angular to sub rounded fine to coarse of mudstone and sandstone. [GLACIAL TILL]
	▼	3.00 3.00 - 3.10	SPT ES	N=13 (1,1/3,3,3,4)	3.00			*Between 3.0m bgl and 3.8m bgl: Becoming Medium dense.*
					3.80			Very stiff medium strength brown sandy slightly sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to medium of mudstone and sandstone. [GLACIAL TILL]
		4.00	SPT	N=24 (4,4/4,6,7,7)	4.00			
		5.00	SPT	N=50 (5,7/50 for 275mm)	5.00			

Continued on next sheet

Remarks

Groundwater encountered at 2.0m and 3.0m.

Borehole Log

Borehole No. **WS113**

Sheet 2 of 2

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Between 5.0m bgl and 5.45m bgl: Becoming Very stiff very high strength.
					5.35			Very stiff grey slightly sandy CLAY. [GLACIAL TILL]
					5.45			End of borehole at 5.45 m

Remarks
Groundwater encountered at 2.0m and 3.0m.

Borehole Log

Borehole No. **WS114**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30 - 0.40	ES					MADE GROUND: Brown sandy gravelly CLAY (Topsoil). Gravel is angular fine to coarse of brick, ash and asphalt.
		0.50 - 0.60	ES		0.50			
					0.60			MADE GROUND: Black slightly gravelly SAND. Gravel is angular fine to coarse of ash and clinker.
		1.00	SPT	N=6 (1,0/1,1,2,2)	1.00			MADE GROUND: Black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub rounded of brick, mudstone and sandstone.
					1.20			MADE GROUND: Black slightly gravelly SAND. Gravel is angular fine to medium of ash, clinker and brick.
		1.50 - 1.60	ES					
					1.60			Firm orange brown sandy gravelly CLAY. Gravel is sub angular fine to medium of mudstone. [GLACIAL TILL]
		2.00	SPT	N=13 (1,2/2,3,4,4)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming Stiff medium strength.*
		2.50 - 2.60	ES					
		3.00	SPT	50 (2,6/50 for 225mm)	3.00			*Between 3.0m bgl and 3.45m bgl: Becoming Very stiff very high strength.*
					3.45			End of borehole at 3.45 m

1 2 3 4 5

Remarks
Refusal met at 3.45m bgl.

Borehole Log

Borehole No. **WS115**

Sheet 1 of 1

Project Name: School Street	Project No. 46009	Co-ords: -	Hole Type WLS
Location: Radcliffe		Level:	Scale 1:25
Client: Galiford Try Building and Bury Metropolitan Bury Council		Dates: 20/03/2015 - 20/03/2015	Logged By C. Radiven

Back fill / Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.01			MADE GROUND: ASPHALT.
		0.50 - 0.60	ES					MADE GROUND: Greyish black clayey slightly gravelly SAND. Gravel is angular to sub rounded of fine to coarse brick, asphalt and sandstone.
					0.90			MADE GROUND: Black gravelly fine to medium SAND. Gravel is angular fine to medium of ash clinker.
	▼	1.00	SPT	N=0 (1,0/0,0,0,0)	1.00			
		1.00 - 1.10	ES		1.00			Black becoming yellowish grey sandy slightly gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
	▼	2.00	SPT	N=13 (2,2/3,3,3,4)	2.00			*Between 2.0m bgl and 3.0m bgl: Becoming stiff medium strength.*
		2.00 - 2.10	ES					
					2.50			Greyish brown slightly clayey slightly gravelly SAND. Gravel is sub angular to sub rounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]
		2.80 - 2.90	ES					
		3.00	SPT	N=50 (3,4/50 for 275mm)	3.00			*Between 3.0m bgl and 3.40m bgl: Becoming Very dense.*
					3.40			Very dense brown silty SAND (Possible cobble). [GLACIAL TILL]
					3.45			End of borehole at 3.45 m

Remarks

Groundwater encountered at 1.0m and 2.0m bgl.

Refusal met at 3.45m bgl.

APPENDIX VII

CHEMICAL TESTING

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: Supplement to 466121-2

Date of Report: 20-Apr-2015

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Mr Niall Martin

Customer Job Reference: 46009
Customer Site Reference: School St, Radcliffe
Date Job Received at SAL: 27-Mar-2015
Date Analysis Started: 27-Mar-2015
Date Analysis Completed: 09-Apr-2015

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

UKAS TESTING
1549

Report checked and authorised by :
Emma Spear
Project Management

Issued by :
Emma Spear
Project Management

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
REC Ltd 002S

				SAL Reference	**466121 001**	**466121 003**	**466121 004**	**466121 005**	**466121 009**	**466121 011**
				Customer Sample Reference	**WS101**	**WS105**	**WS108**	**WS111**	**TP103**	**TP107**
				Date Sampled	**18-MAR-2015**	**18-MAR-2015**	**19-MAR-2015**	**20-MAR-2015**	**23-MAR-2015**	**23-MAR-2015**
				Bottom Depth	**0.2**	**0.1**	**0.3**	**0.2**	**0.8**	**1.5**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Arsenic	T6	AR	1	mg/kg	**56**	**12**	**14**	**92**	**39**	**4**
Cadmium	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	T6	AR	1	mg/kg	**29**	**13**	**17**	**31**	**20**	**8**
Lead	T6	AR	1	mg/kg	**300**	**160**	**110**	**300**	**130**	**16**
Mercury	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Selenium	T6	AR	3	mg/kg	<3	<3	<3	<3	<3	<3
Copper	T6	AR	1	mg/kg	**270**	**38**	**45**	**200**	**85**	**12**
Nickel	T6	AR	1	mg/kg	**64**	**14**	**15**	**87**	**27**	**7**
Zinc	T6	AR	1	mg/kg	**350**	**250**	**120**	**190**	**99**	**34**
pH	T7	AR			**7.4**	**7.3**	**7.3**	**7.6**	**5.1**	**7.4**
SO4(Total)	T6	AR	0.01	%	**0.20**	**0.20**	**3.7**	**0.18**	**0.17**	**0.03**
SO4(2:1)	T6	AR	100	mg/l	<100	<100	**1300**	<100	<100	<100
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1

SAL Reference: 466121
Project Site: School St, Radcliffe
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Soil Analysed as Soil
REC Ltd 002S

				SAL Reference	**466121 013**	**466121 014**	**466121 016**	**466121 017**	**466121 018**	**466121 020**
				Customer Sample Reference	**TP112**	**TP113**	**TP117**	**TP118**	**TP119**	**TP120**
				Date Sampled	**23-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**1.2**	**0.4**	**0.4**	**1.0**	**0.6**	**0.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Arsenic	T6	AR	1	mg/kg	**4**	**57**	**27**	**35**	**6**	**200**
Cadmium	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	T6	AR	1	mg/kg	**15**	**27**	**20**	**20**	**10**	**54**
Lead	T6	AR	1	mg/kg	**15**	**230**	**500**	**200**	**16**	**170**
Mercury	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	**1**
Selenium	T6	AR	3	mg/kg	<3	<3	<3	<3	<3	<3
Copper	T6	AR	1	mg/kg	**10**	**160**	**95**	**100**	**24**	**220**
Nickel	T6	AR	1	mg/kg	**8**	**65**	**24**	**30**	**14**	**110**
Zinc	T6	AR	1	mg/kg	**20**	**180**	**320**	**190**	**43**	**230**
pH	T7	AR			**7.0**	**6.9**	**7.7**	**6.8**	**7.0**	**6.7**
SO4(Total)	T6	AR	0.01	%	**0.01**	**0.13**	**0.51**	**0.10**	<0.01	**0.19**
SO4(2:1)	T6	AR	100	mg/l	<100	<100	**250**	<100	<100	<100
Cyanide(Total)	T4	AR	1	mg/kg	<1	<1	<1	<1	<1	**330**
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1	<1	<1	**1**
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1

SAL Reference: 466121
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Soil Analysed as Soil
REC Ltd 002S

				SAL Reference	**466121 021**	**466121 022**	**466121 023**
				Customer Sample Reference	**TP122**	**TP104**	**TP121**
				Date Sampled	**24-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**0.5**	**0.3**	**1.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Arsenic	T6	AR	1	mg/kg	**26**	**91**	**6**
Cadmium	T6	AR	1	mg/kg	<1	<1	<1
Chromium	T6	AR	1	mg/kg	**22**	**26**	**15**
Lead	T6	AR	1	mg/kg	**130**	**380**	**22**
Mercury	T6	AR	1	mg/kg	<1	<1	<1
Selenium	T6	AR	3	mg/kg	<3	<3	<3
Copper	T6	AR	1	mg/kg	**76**	**190**	**15**
Nickel	T6	AR	1	mg/kg	**27**	**52**	**10**
Zinc	T6	AR	1	mg/kg	**140**	**290**	**25**
pH	T7	AR			**6.6**	**7.1**	**6.9**
SO4(Total)	T6	AR	0.01	%	**0.09**	**0.11**	**0.02**
SO4(2:1)	T6	AR	100	mg/l	<100	<100	<100
Cyanide(Total)	T4	AR	1	mg/kg	**2**	<1	<1
Phenols(Mono)	T4	AR	1	mg/kg	<1	<1	<1
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
Total and Speciated USEPA16 PAH

				SAL Reference	**466121 001**	**466121 003**	**466121 004**	**466121 005**	**466121 009**	**466121 011**
				Customer Sample Reference	**WS101**	**WS105**	**WS108**	**WS111**	**TP103**	**TP107**
				Date Sampled	**18-MAR-2015**	**18-MAR-2015**	**19-MAR-2015**	**20-MAR-2015**	**23-MAR-2015**	**23-MAR-2015**
				Bottom Depth	**0.2**	**0.1**	**0.3**	**0.2**	**0.8**	**1.5**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Naphthalene	T149	AR	0.01	mg/kg	**0.19**	**0.21**	**0.20**	**0.09**	**0.06**	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	**0.13**	**0.02**	**0.11**	**0.02**	**0.01**	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	**0.56**	**0.84**	**0.63**	**0.03**	**0.01**	<0.01
Fluorene	T149	AR	0.01	mg/kg	**0.39**	**0.55**	**0.47**	**0.02**	**0.01**	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	**3.9**	**5.0**	**5.9**	**0.38**	**0.18**	**0.02**
Anthracene	T149	AR	0.01	mg/kg	**1.0**	**1.3**	**2.1**	**0.10**	**0.05**	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	**5.8**	**5.1**	**8.3**	**0.70**	**0.30**	**0.02**
Pyrene	T149	AR	0.01	mg/kg	**5.1**	**4.1**	**7.1**	**0.64**	**0.28**	**0.01**
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	**2.6**	**1.5**	**2.8**	**0.30**	**0.13**	**0.01**
Chrysene	T149	AR	0.01	mg/kg	**2.6**	**1.7**	**3.0**	**0.31**	**0.15**	**0.01**
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	**4.6**	**2.5**	**4.8**	**0.48**	**0.24**	**0.01**
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	**2.8**	**1.4**	**2.7**	**0.26**	**0.12**	**0.01**
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	**1.6**	**0.82**	**1.5**	**0.15**	**0.09**	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	**0.37**	**0.21**	**0.34**	**0.04**	**0.02**	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	**1.3**	**0.64**	**1.2**	**0.12**	**0.07**	<0.01
PAH(total)	T149	AR	0.01	mg/kg	**33**	**26**	**41**	**3.6**	**1.7**	**0.09**

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Soil Analysed as Soil
Total and Speciated USEPA16 PAH

				SAL Reference	**466121 013**	**466121 014**	**466121 016**	**466121 017**	**466121 018**	**466121 020**
				Customer Sample Reference	**TP112**	**TP113**	**TP117**	**TP118**	**TP119**	**TP120**
				Date Sampled	**23-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**1.2**	**0.4**	**0.4**	**1.0**	**0.6**	**0.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Naphthalene	T149	AR	0.01	mg/kg	<0.01	**0.02**	**0.37**	**0.10**	**0.01**	**0.45**
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01	**0.01**	**0.03**	**0.01**	<0.01	**0.08**
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	**0.01**	**1.3**	**0.34**	<0.01	**0.06**
Fluorene	T149	AR	0.01	mg/kg	<0.01	**0.01**	**0.99**	**0.19**	<0.01	**0.05**
Phenanthrene	T149	AR	0.01	mg/kg	**0.01**	**0.12**	**7.1**	**1.9**	**0.04**	**0.68**
Anthracene	T149	AR	0.01	mg/kg	<0.01	**0.03**	**1.8**	**0.50**	**0.01**	**0.13**
Fluoranthene	T149	AR	0.01	mg/kg	**0.01**	**0.22**	**7.8**	**3.4**	**0.06**	**0.77**
Pyrene	T149	AR	0.01	mg/kg	**0.01**	**0.20**	**6.5**	**3.0**	**0.05**	**0.68**
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	**0.01**	**0.09**	**3.1**	**1.5**	**0.02**	**0.38**
Chrysene	T149	AR	0.01	mg/kg	**0.01**	**0.10**	**2.7**	**1.5**	**0.03**	**0.37**
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	**0.01**	**0.19**	**4.8**	**2.6**	**0.04**	**0.92**
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	<0.01	**0.11**	**2.8**	**1.4**	**0.02**	**0.48**
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	<0.01	**0.07**	**1.5**	**0.77**	**0.01**	**0.40**
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01	**0.02**	**0.50**	**0.19**	<0.01	**0.08**
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	<0.01	**0.06**	**1.2**	**0.60**	**0.01**	**0.31**
PAH(total)	T149	AR	0.01	mg/kg	**0.06**	**1.3**	**42**	**18**	**0.30**	**5.8**

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
Total and Speciated USEPA16 PAH

				SAL Reference	**466121 021**	**466121 022**	**466121 023**
				Customer Sample Reference	**TP122**	**TP104**	**TP121**
				Date Sampled	**24-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**0.5**	**0.3**	**1.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Naphthalene	T149	AR	0.01	mg/kg	**0.19**	**0.14**	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	**0.01**	**0.02**	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	**0.19**	**0.07**	<0.01
Fluorene	T149	AR	0.01	mg/kg	**0.11**	**0.05**	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	**1.3**	**0.71**	**0.01**
Anthracene	T149	AR	0.01	mg/kg	**0.35**	**0.15**	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	**2.4**	**1.2**	**0.02**
Pyrene	T149	AR	0.01	mg/kg	**2.1**	**1.1**	**0.01**
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	**0.93**	**0.47**	**0.01**
Chrysene	T149	AR	0.01	mg/kg	**1.1**	**0.53**	**0.01**
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	**1.7**	**0.81**	**0.01**
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	**0.96**	**0.42**	**0.01**
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	**0.66**	**0.36**	**0.01**
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	**0.14**	**0.08**	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	**0.59**	**0.32**	<0.01
PAH(total)	T149	AR	0.01	mg/kg	**13**	**6.4**	**0.09**

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
REC TPH (CWG)

				SAL Reference	**466121 015**	**466121 019**	**466121 021**
				Customer Sample Reference	**TP115**	**TP119**	**TP122**
				Date Sampled	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**1.0**	**1.2**	**0.5**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Benzene	T54	AR	0.001	mg/kg	(13) <0.001	(13) <0.001	(13) <0.001
Toluene	T54	AR	0.001	mg/kg	<0.001	**0.004**	**0.002**
EthylBenzene	T54	AR	0.001	mg/kg	<0.001	<0.001	<0.001
M/P Xylene	T54	AR	0.001	mg/kg	<0.001	**0.002**	<0.001
O Xylene	T54	AR	0.001	mg/kg	<0.001	<0.001	<0.001
Methyl tert-Butyl Ether	T54	AR	0.001	mg/kg	<0.001	<0.001	<0.001
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1	<1	<1
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	<1	**1**	**1**
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	<1	**9**	**9**
TPH (Aliphatic) total	T85	AR		mg/kg	N.D.	**10**	**10**
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	**0.034**	**0.25**	**0.18**
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1	**4**	**4**
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	<1	**20**	**23**
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	<1	**48**	**45**
TPH (Aromatic) total	T85	AR		mg/kg	N.D.	**72**	**72**
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/kg	N.D.	**82**	**82**

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
REC Suite C (Banded TPH C5-C35)

				SAL Reference	**466121 001**	**466121 003**	**466121 004**	**466121 005**	**466121 009**	**466121 011**
				Customer Sample Reference	**WS101**	**WS105**	**WS108**	**WS111**	**TP103**	**TP107**
				Date Sampled	**18-MAR-2015**	**18-MAR-2015**	**19-MAR-2015**	**20-MAR-2015**	**23-MAR-2015**	**23-MAR-2015**
				Bottom Depth	**0.2**	**0.1**	**0.3**	**0.2**	**0.8**	**1.5**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
TPH (C5-C6)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C6-C8)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12)	T8	AR	1	mg/kg	(9) <10	<1	<1	<1	<1	<1
TPH (C12-C16)	T8	AR	1	mg/kg	**13**	**2**	<1	<1	<1	<1
TPH (C16-C21)	T8	AR	1	mg/kg	**82**	**12**	**8**	**2**	<1	<1
TPH (C21-C35)	T8	AR	1	mg/kg	**170**	**30**	**47**	**21**	<1	<1

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
REC Suite C (Banded TPH C5-C35)

				SAL Reference	**466121 013**	**466121 014**	**466121 016**	**466121 017**	**466121 018**	**466121 020**
				Customer Sample Reference	**TP112**	**TP113**	**TP117**	**TP118**	**TP119**	**TP120**
				Date Sampled	**23-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**1.2**	**0.4**	**0.4**	**1.0**	**0.6**	**0.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
TPH (C5-C6)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C6-C8)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C8-C10)	T54	AR	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TPH (C10-C12)	T8	AR	1	mg/kg	<1	**2**	<1	<1	<1	**5**
TPH (C12-C16)	T8	AR	1	mg/kg	<1	**22**	**5**	**2**	<1	**9**
TPH (C16-C21)	T8	AR	1	mg/kg	<1	**93**	**25**	**16**	<1	**21**
TPH (C21-C35)	T8	AR	1	mg/kg	<1	**160**	**58**	**41**	<1	**100**

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
REC Suite C (Banded TPH C5-C35)

				SAL Reference	**466121 022**	**466121 023**
				Customer Sample Reference	**TP104**	**TP121**
				Date Sampled	**23-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**0.3**	**1.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
TPH (C5-C6)	T54	AR	0.10	mg/kg	<0.10	<0.10
TPH (C6-C8)	T54	AR	0.10	mg/kg	<0.10	<0.10
TPH (C8-C10)	T54	AR	0.10	mg/kg	<0.10	<0.10
TPH (C10-C12)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16)	T8	AR	1	mg/kg	**5**	<1
TPH (C16-C21)	T8	AR	1	mg/kg	**10**	<1
TPH (C21-C35)	T8	AR	1	mg/kg	**33**	<1

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
PCBs EC7 congeners(28,52,101,118,138,153,180)

				SAL Reference	**466121 002**	**466121 005**
				Customer Sample Reference	**WS104**	**WS111**
				Date Sampled	**18-MAR-2015**	**20-MAR-2015**
				Bottom Depth	**0.5**	**0.2**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
PCB BZ#28	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#52	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#101	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#118	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#138	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#153	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#180	T1	AR	0.00005	mg/kg	<0.00005	<0.00005

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
Poly-Chlorinated Biphenyls (WHO 12)

				SAL Reference	**466121 002**	**466121 005**
				Customer Sample Reference	**WS104**	**WS111**
				Date Sampled	**18-MAR-2015**	**20-MAR-2015**
				Bottom Depth	**0.5**	**0.2**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
PCB BZ#77	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#81	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#105	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#114	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#118	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#123	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#126	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#156	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#157	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#167	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#169	T1	AR	0.00005	mg/kg	<0.00005	<0.00005
PCB BZ#189	T1	AR	0.00005	mg/kg	<0.00005	<0.00005

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
Miscellaneous

				SAL Reference	**466121 003**	**466121 004**	**466121 005**	**466121 006**	**466121 007**	**466121 008**
				Customer Sample Reference	**WS105**	**WS108**	**WS111**	**WS113**	**TP101**	**TP103**
				Date Sampled	**18-MAR-2015**	**19-MAR-2015**	**20-MAR-2015**	**20-MAR-2015**	**23-MAR-2015**	**23-MAR-2015**
				Bottom Depth	**0.1**	**0.3**	**0.2**	**0.5**	**0.3**	**0.3**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Asbestos ID	T27	AR			N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Organic Carbon	T21	AR	0.1	%	**3.0**	-	**12**	-	**3.5**	-

SAL Reference: 466121
Project Site: School St, Radcliffe
Customer Reference: 46009

Soil Analysed as Soil
Miscellaneous

				SAL Reference	**466121 010**	**466121 012**	**466121 014**	**466121 016**	**466121 020**
				Customer Sample Reference	**TP107**	**TP111**	**TP113**	**TP117**	**TP120**
				Date Sampled	**23-MAR-2015**	**23-MAR-2015**	**23-MAR-2015**	**24-MAR-2015**	**24-MAR-2015**
				Bottom Depth	**0.2**	**0.5**	**0.4**	**0.4**	**0.8**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Asbestos ID	T27	AR			N.D.	N.D.	N.D.	N.D.	N.D.
Total Organic Carbon	T21	AR	0.1	%	-	**3.1**	-	**5.4**	-

Index to symbols used in Supplement to 466121-2

Value	Description
AR	As Received
N.D.	Not Detected
13	Results have been blank corrected.
9	LOD raised due to dilution of sample
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Supplemental report issued to amend sample references and date sampled.

Method Index

Value	Description
T4	Colorimetry
T8	GC/FID
T6	ICP/OES
T54	GC/MS (Headspace)
T85	Calc
T21	OX/IR
T27	PLM
T1	GC/MS (HR)
T7	Probe
T149	GC/MS (SIR)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Cadmium	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Chromium	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Lead	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Mercury	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Selenium	T6	AR	3	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Copper	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Nickel	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Zinc	T6	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
pH	T7	AR			U	001,003-005,009,011,013-014,016-018,020-023
SO4(Total)	T6	AR	0.01	%	N	001,003-005,009,011,013-014,016-018,020-023
SO4(2:1)	T6	AR	100	mg/l	N	001,003-005,009,011,013-014,016-018,020-023
Cyanide(Total)	T4	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Phenols(Mono)	T4	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Chromium VI	T6	AR	1	mg/kg	N	001,003-005,009,011,013-014,016-018,020-023
Naphthalene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Acenaphthene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Fluorene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Phenanthrene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Anthracene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Fluoranthene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Pyrene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Chrysene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Benzo(b/k)Fluoranthene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
PAH(total)	T149	AR	0.01	mg/kg	U	001,003-005,009,011,013-014,016-018,020-023
Benzene	T54	AR	0.001	mg/kg	U	015,019,021
Toluene	T54	AR	0.001	mg/kg	U	015,019,021
EthylBenzene	T54	AR	0.001	mg/kg	U	015,019,021
M/P Xylene	T54	AR	0.001	mg/kg	U	015,019,021
O Xylene	T54	AR	0.001	mg/kg	U	015,019,021
Methyl tert-Butyl Ether	T54	AR	0.001	mg/kg	U	015,019,021
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	N	015,019,021
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	N	015,019,021
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	N	015,019,021
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (Aliphatic) total	T85	AR		mg/kg	N	015,019,021
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	N	015,019,021
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	N	015,019,021

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	N	015,019,021
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	015,019,021
TPH (Aromatic) total	T85	AR		mg/kg	N	015,019,021
TPH (Aliphatic+Aromatic) (sum)	T85	AR		mg/kg	N	015,019,021
TPH (C5-C6)	T54	AR	0.10	mg/kg	N	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C6-C8)	T54	AR	0.10	mg/kg	N	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C8-C10)	T54	AR	0.10	mg/kg	N	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C10-C12)	T8	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C12-C16)	T8	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C16-C21)	T8	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020,022-023
TPH (C21-C35)	T8	AR	1	mg/kg	U	001,003-005,009,011,013-014,016-018,020,022-023
PCB BZ#28	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#52	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#101	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#118	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#138	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#153	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#180	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#77	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#81	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#105	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#114	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#123	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#126	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#156	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#157	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#167	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#169	T1	AR	0.00005	mg/kg	U	002,005
PCB BZ#189	T1	AR	0.00005	mg/kg	U	002,005
Asbestos ID	T27	AR			SU	003-008,010,012,014,016,020
Total Organic Carbon	T21	AR	0.1	%	N	003,005,007,012,016

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Scientific Analysis Laboratories Ltd

Certificate of Analysis

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: 467313-1

Date of Report: 13-Apr-2015

Customer: Resource Environmental Consultants Ltd
Osprey House
Pacific Quay
Broadway
Salford
M50 2UE

Customer Contact: Mr Niall Martin

Customer Job Reference: 46009
Customer Purchase Order: 15/M/215/46009/NM
Customer Site Reference: Radcliffe
Date Job Received at SAL: 31-Mar-2015
Date Analysis Started: 07-Apr-2015
Date Analysis Completed: 13-Apr-2015

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

UKAS TESTING
1549

Report checked and authorised by :
Emma Spear
Project Management

Issued by :
Emma Spear
Project Management

SAL Reference: 467313
Project Site: Radcliffe
Customer Reference: 46009

Water Analysed as Water
REC Ltd 002W

				SAL Reference	**467313 001**	**467313 002**	**467313 003**
				Customer Sample Reference	**WS101**	**WS104**	**WS113**
				Date Sampled	**31-MAR-2015**	**31-MAR-2015**	**31-MAR-2015**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
As (Dissolved)	T281	AR	0.2	µg/l	**9.9**	**5.2**	**3.1**
Cd (Dissolved)	T281	AR	0.02	µg/l	**0.02**	<0.02	**0.02**
Cr (Dissolved)	T281	AR	1	µg/l	**6**	**2**	<1
Pb (Dissolved)	T281	AR	0.3	µg/l	**0.3**	**0.5**	<0.3
Hg (Dissolved)	T281	AR	0.05	µg/l	<0.05	**0.21**	<0.05
Se (Dissolved)	T281	AR	0.5	µg/l	**4.8**	**1.1**	**1.1**
Cu (Dissolved)	T281	AR	0.5	µg/l	**12**	**9.9**	**6.9**
Ni (Dissolved)	T281	AR	1	µg/l	**3**	<1	**2**
Zn (Dissolved)	T281	AR	2	µg/l	**32**	**14**	**9**
pH	T7	AR			**7.6**	**7.8**	**7.5**
Cyanide(Total)	T4	AR	0.05	mg/l	<0.05	<0.05	<0.05
Phenols(Mono)	T4	AR	0.1	mg/l	<0.1	<0.1	<0.1
Chromium VI	T686	AR	0.003	mg/l	**0.004**	**0.004**	**0.004**
Sulphate	T686	AR	0.5	mg/l	**100**	**40**	**21**

SAL Reference: 467313
Project Site: Radcliffe
Customer Reference: 46009

Water Analysed as Water
Total and Speciated USEPA16 PAH

				SAL Reference	**467313 001**	**467313 002**	**467313 003**
				Customer Sample Reference	**WS101**	**WS104**	**WS113**
				Date Sampled	**31-MAR-2015**	**31-MAR-2015**	**31-MAR-2015**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Naphthalene	T149	AR	0.01	µg/l	**0.03**	<0.01	**0.01**
Acenaphthylene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Acenaphthene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Fluorene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Phenanthrene	T149	AR	0.01	µg/l	**0.01**	**0.02**	**0.04**
Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Fluoranthene	T149	AR	0.01	µg/l	**0.01**	**0.02**	**0.09**
Pyrene	T149	AR	0.01	µg/l	**0.01**	**0.02**	**0.09**
Benzo(a)Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.04**
Chrysene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.04**
Benzo(b/k)Fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.07**
Benzo(a)Pyrene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.03**
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.03**
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	<0.01	<0.01	**0.04**
PAH(total)	T149	AR	0.01	µg/l	**0.06**	**0.06**	**0.48**

SAL Reference: 467313
Project Site: Radcliffe
Customer Reference: 46009

Water Analysed as Water
REC Suite C (Banded TPH C5-C35)

SAL Reference	**467313 001**	**467313 002**	**467313 003**
Customer Sample Reference	**WS101**	**WS104**	**WS113**
Date Sampled	**31-MAR-2015**	**31-MAR-2015**	**31-MAR-2015**

Determinand	Method	Test Sample	LOD	Units			
TPH (C5-C6)	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C6-C8)	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C8-C10) DW	T215	AR	0.010	mg/l	<0.010	<0.010	<0.010
TPH (C10-C12) DW	T81	AR	0.01	mg/l	<0.01	<0.01	<0.01
TPH (C12-C16) DW	T81	AR	0.01	mg/l	<0.01	<0.01	<0.01
TPH (C16-C21) DW	T81	AR	0.01	mg/l	<0.01	<0.01	<0.01
TPH (C21-C35) DW	T81	AR	0.01	mg/l	<0.01	<0.01	**0.02**

SAL Reference: 467313
Project Site: Radcliffe
Customer Reference: 46009

Water Analysed as Water
Hardness

SAL Reference	**467313 001**	**467313 002**	**467313 003**
Customer Sample Reference	**WS101**	**WS104**	**WS113**
Date Sampled	**31-MAR-2015**	**31-MAR-2015**	**31-MAR-2015**

Determinand	Method	Test Sample	LOD	Units			
Hardness expressed as CaCO3	T6	AR	10	mg/l	**250**	**130**	**150**

Index to symbols used in 467313-1

Value	Description
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T81	GC/FID (LV)
T4	Colorimetry
T215	GC/MS (Headspace)(LV)
T6	ICP/OES
T149	GC/MS (SIR)
T281	ICP/MS (Filtered)
T7	Probe
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
As (Dissolved)	T281	AR	0.2	µg/l	U	001-003
Cd (Dissolved)	T281	AR	0.02	µg/l	U	001-003
Cr (Dissolved)	T281	AR	1	µg/l	U	001-003
Pb (Dissolved)	T281	AR	0.3	µg/l	U	001-003
Hg (Dissolved)	T281	AR	0.05	µg/l	U	001-003
Se (Dissolved)	T281	AR	0.5	µg/l	U	001-003
Cu (Dissolved)	T281	AR	0.5	µg/l	U	001-003
Ni (Dissolved)	T281	AR	1	µg/l	U	001-003
Zn (Dissolved)	T281	AR	2	µg/l	U	001-003
pH	T7	AR			U	001-003
Cyanide(Total)	T4	AR	0.05	mg/l	U	001-003
Phenols(Mono)	T4	AR	0.1	mg/l	U	001-003

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Chromium VI	T686	AR	0.003	mg/l	U	001-003
Sulphate	T686	AR	0.5	mg/l	U	001-003
Naphthalene	T149	AR	0.01	µg/l	U	001-003
Acenaphthylene	T149	AR	0.01	µg/l	U	001-003
Acenaphthene	T149	AR	0.01	µg/l	U	001-003
Fluorene	T149	AR	0.01	µg/l	U	001-003
Phenanthrene	T149	AR	0.01	µg/l	U	001-003
Anthracene	T149	AR	0.01	µg/l	U	001-003
Fluoranthene	T149	AR	0.01	µg/l	U	001-003
Pyrene	T149	AR	0.01	µg/l	U	001-003
Benzo(a)Anthracene	T149	AR	0.01	µg/l	U	001-003
Chrysene	T149	AR	0.01	µg/l	U	001-003
Benzo(b/k)Fluoranthene	T149	AR	0.01	µg/l	U	001-003
Benzo(a)Pyrene	T149	AR	0.01	µg/l	U	001-003
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	U	001-003
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	U	001-003
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	U	001-003
PAH(total)	T149	AR	0.01	µg/l	U	001-003
TPH (C5-C6)	T215	AR	0.010	mg/l	N	001-003
TPH (C6-C8)	T215	AR	0.010	mg/l	N	001-003
TPH (C8-C10) DW	T215	AR	0.010	mg/l	N	001-003
TPH (C10-C12) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C12-C16) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C16-C21) DW	T81	AR	0.01	mg/l	U	001-003
TPH (C21-C35) DW	T81	AR	0.01	mg/l	U	001-003
Hardness expressed as CaCO3	T6	AR	10	mg/l	N	001-003

APPENDIX VIII

GEOTECHNICAL TESTING

PSL
Professional Soils Laboratory

LABORATORY REPORT

UKAS TESTING
4043

Contract Number: PSL15/1579

Client's Reference: 46009 Report Date: 16 April 2015

Client Name: REC Manchester
Osprey House
Pacific Quay
Broadway
Manchester
M50 2UE

For the attention of: Niall Martin

Contract Title: School Street, Radcliffe

Date Received: 31/03/2015
Date Commenced: 31/03/2015
Date Completed: 16/04/2015

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 in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)
A Watkins (Director)
M Beastall (Laboratory Manager)

D Lambe (Senior Technician)
S Royle (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
TP4		B	1.00	Brown slightly gravelly very sandy CLAY.
TP6		B	2.00	Brown gravelly very clayey SAND.
TP7		B	2.50	Brown slightly gravelly slightly silty SAND.
TP12		B	1.50	Brown sandy CLAY.
TP12		D	1.50	Brown slightly gravelly very sandy CLAY.
TP13		DB	2.50	Brown mottled grey slightly sandy CLAY.
TP14		D	3.00	Brown mottled grey very sandy CLAY.
TP15		DB	2.00	Brown silty SAND.
TP16		D	2.00	Brown mottled grey very sandy CLAY.
TP18		B	2.00	Brown very sandy very silty CLAY.

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	15/04/15		16/04/15		16/04/15

SCHOOL STREET, RADCLIFFE.

Contract No: PSL15/1579

Client Ref: 46009

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	% Passing .425mm	Remarks
TP4		B	1.00	24				38	20	18	100	Intermediate plasticity CI.
TP12		D	1.50	43				46	23	23	100	Intermediate plasticity CI.
TP13		DB	2.50	43				54	26	28	100	High plasticity CH.
TP14		D	3.00	33				38	21	17	100	Intermediate plasticity CI.
TP16		D	2.00	25				37	21	16	100	Intermediate plasticity CI.
TP18		B	2.00	23				33	20	13	100	Low plasticity CL.

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

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	15/04/15		16/04/15		16/04/15

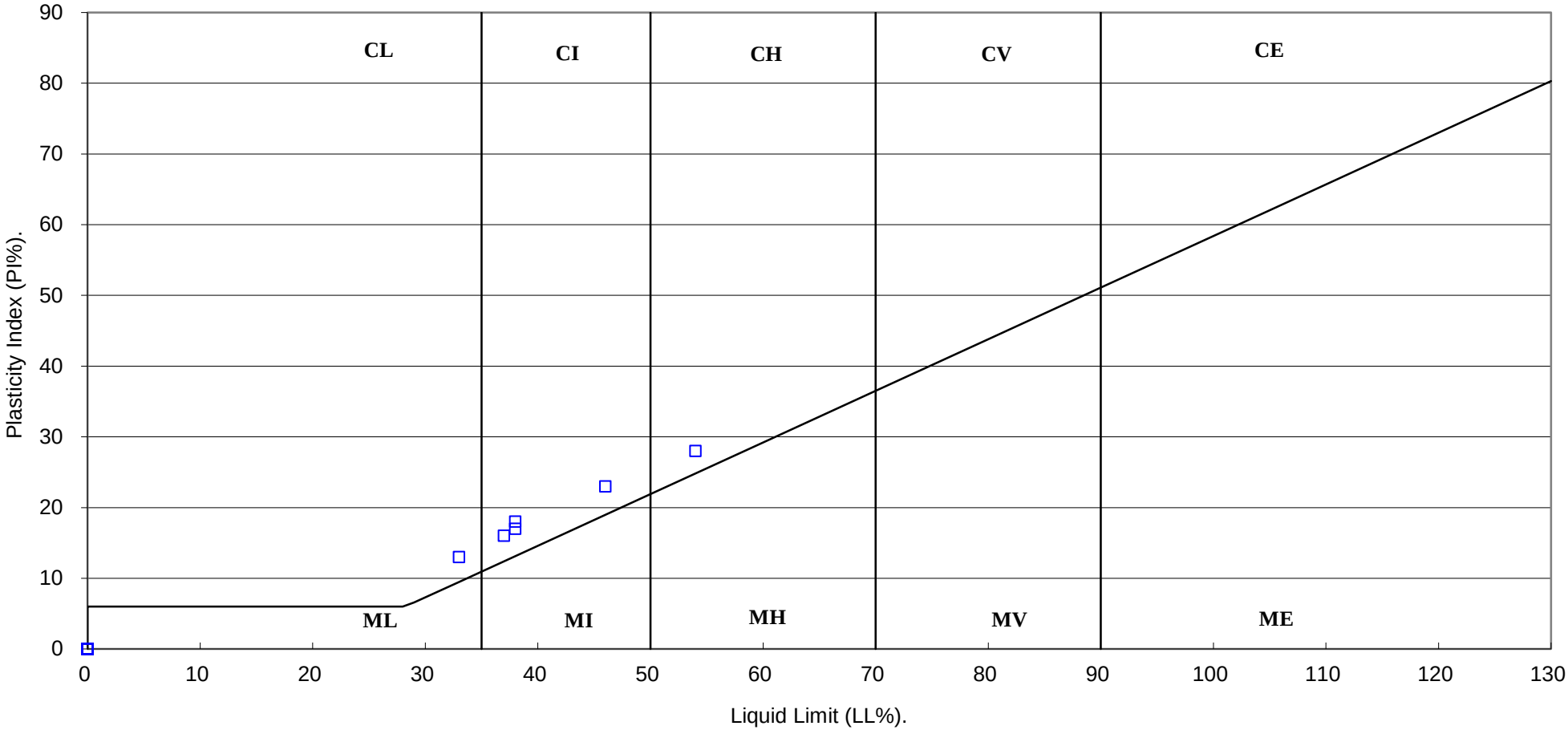
SCHOOL STREET, RADCLIFFE.

Contract No: **PSL15/1579**

Client Ref: **46009**

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL Professional Soils Laboratory	Compiled by	Date	Checked by	Date	Approved by	Date
		15/04/15		16/04/15		16/04/15
	SCHOOL STREET, RADCLIFFE.				Contract No:	PSL15/1579
					Client Ref:	46009

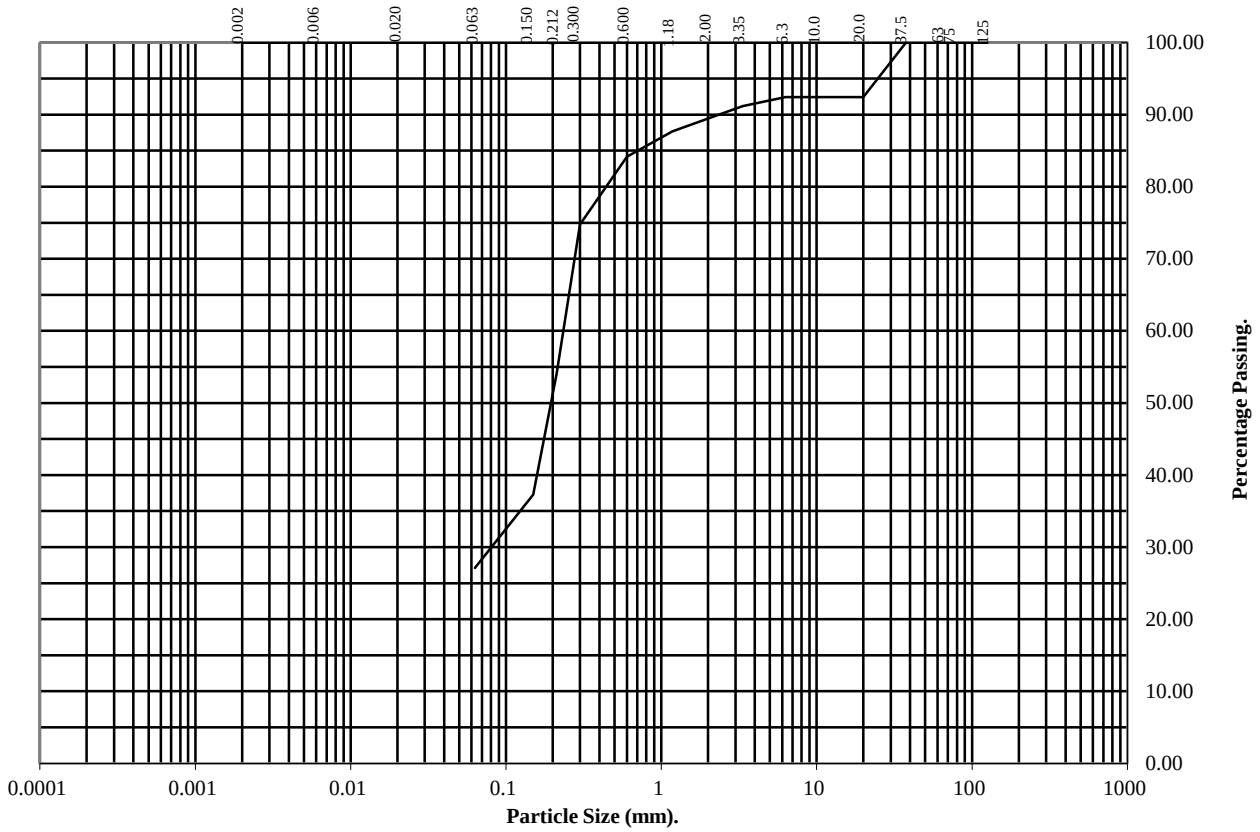
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP6** **Depth (m):** **2.00**

Sample Number: **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	92
6.3	92
3.35	91
2	89
1.18	88
0.6	84
0.3	75
0.212	54
0.15	37
0.063	27

Soil Fraction	Total Percentage
Cobbles	0
Gravel	11
Sand	62
Silt / Clay	27

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	16/04/15		16/04/15

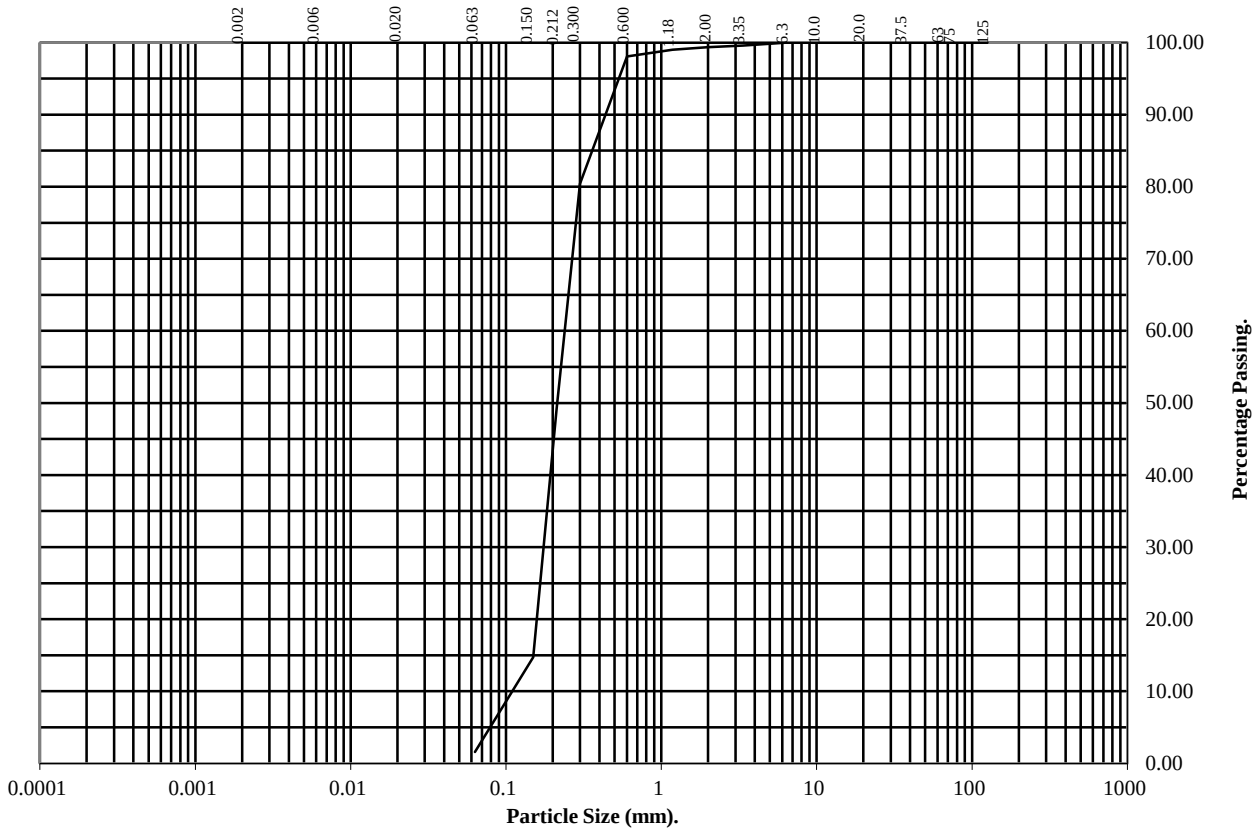
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP7** **Depth (m):** **2.50**

Sample Number: **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	80
0.212	49
0.15	15
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	97
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	16/04/15		16/04/15

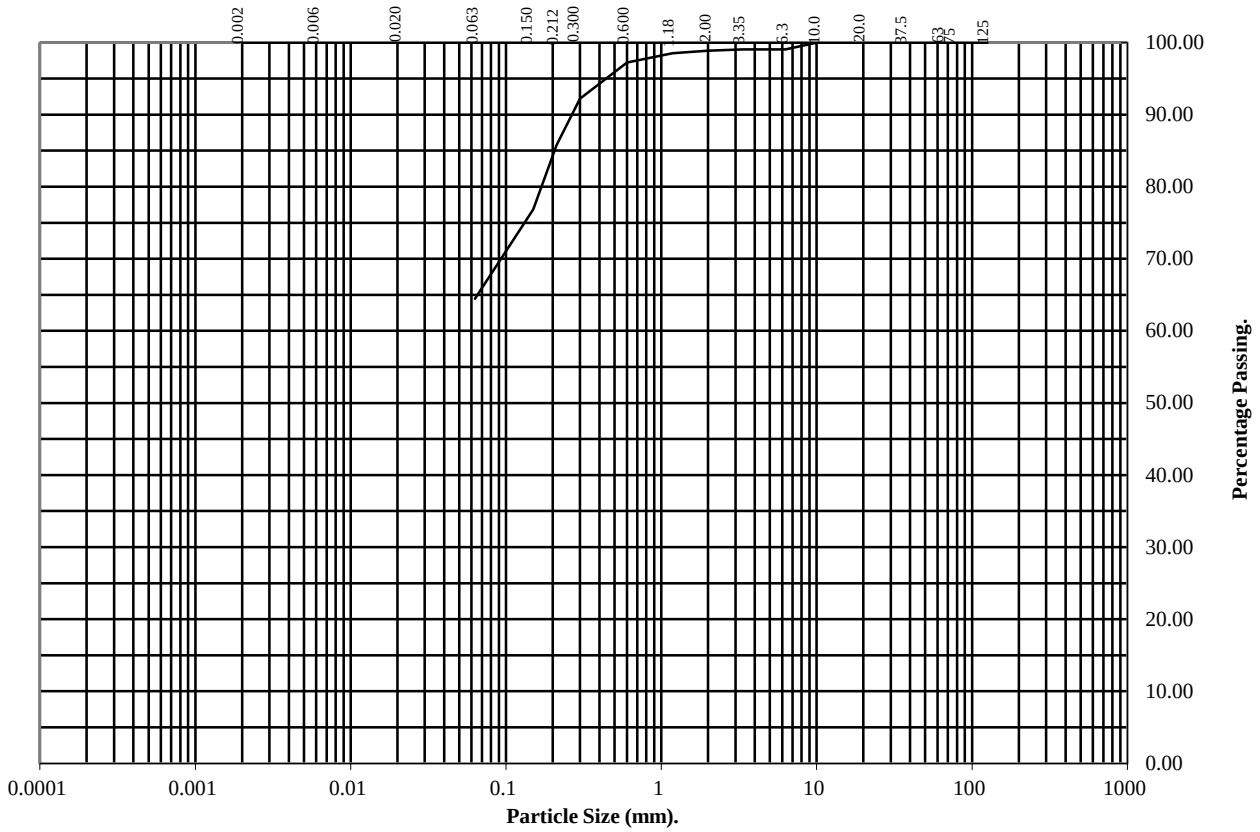
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP12** **Depth (m):** **1.50**

Sample Number: **Sample Type:** **D**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	99
2	99
1.18	99
0.6	97
0.3	92
0.212	86
0.15	77
0.063	64

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	35
Silt / Clay	64

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	16/04/15		16/04/15

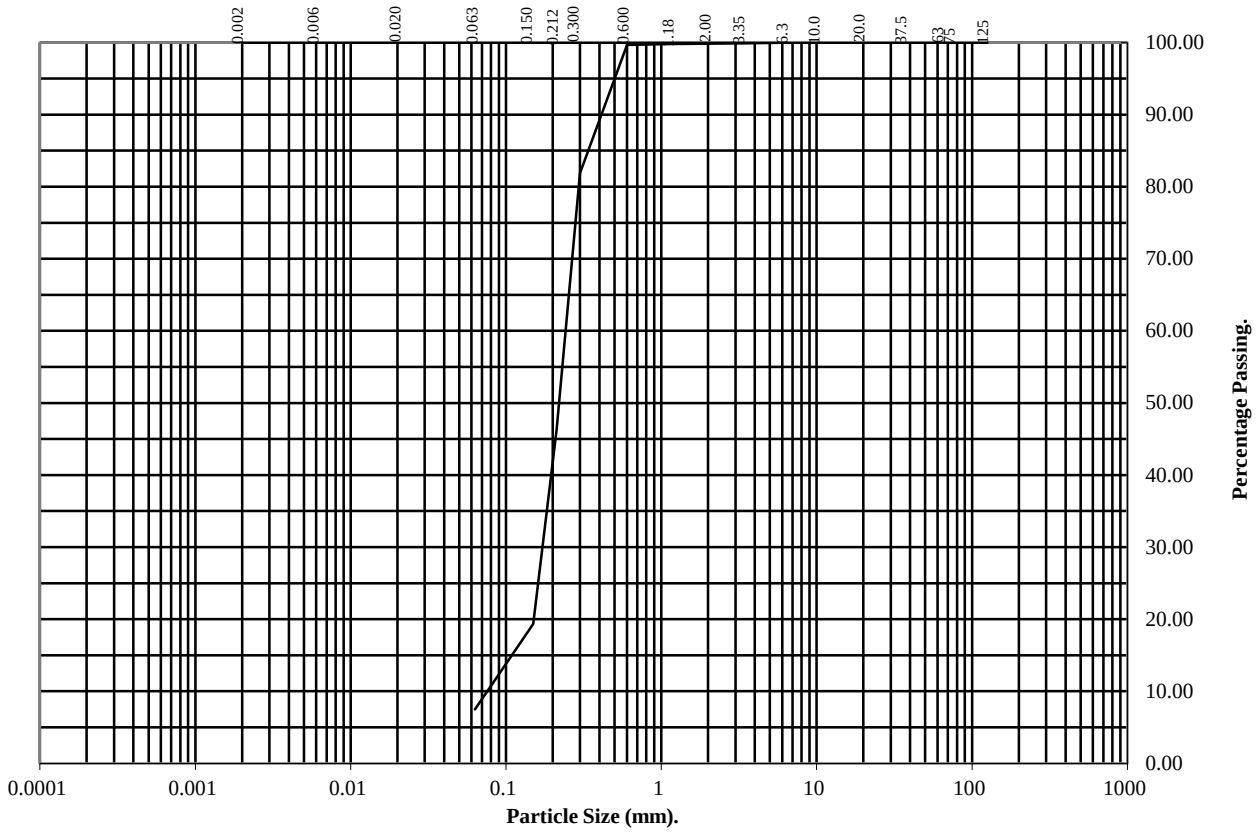
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP15** **Depth (m):** **2.00**

Sample Number: **Sample Type:** **DB**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	82
0.212	46
0.15	19
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	92
Silt / Clay	8

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	16/04/15		16/04/15

APPENDIX IX

IN SITU TESTING

Falling Head Test

Borehole: WS106

Test No: 1 of 1

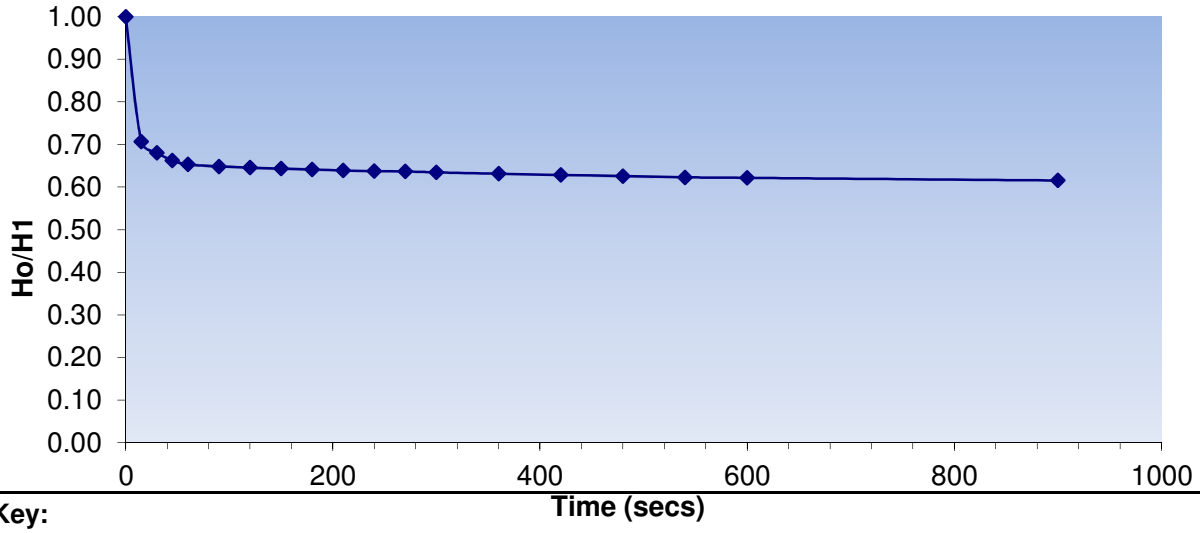
Contract No:	46009	Diameter	92	mm
Contract Title:	School St	Top Of Response Zone	1.00	m
Date of Test:	01/03/2015	Base of Response Zone	3.00	m
		Groundwater Level	2.41	m

Recorded Time			Total Time (secs)	Depth (m)	H/Ho
Hours	Minutes	Seconds			
0	0	0	0	0.00	1.000
0	0	15	15	0.71	0.707
0	0	30	30	0.77	0.681
0	0	45	45	0.81	0.662
0	1	0	60	0.83	0.653
0	1	30	90	0.85	0.648
0	2	0	120	0.85	0.646
0	2	30	150	0.86	0.643
0	3	0	180	0.86	0.641
0	3	30	210	0.87	0.639
0	4	0	240	0.87	0.637
0	4	30	270	0.87	0.637
0	5	0	300	0.88	0.635
0	6	0	360	0.89	0.631
0	7	0	420	0.89	0.628
0	8	0	480	0.90	0.626
0	9	0	540	0.91	0.623
0	10	0	600	0.91	0.622
0	15	0	900	0.93	0.615
0	20	0	1200	0.94	0.611
0	30	0	1800	0.94	0.608
0	40	0	2400	0.95	0.607

H_0 =	2.405
H_1 =	0.707
H_2 =	0.681
t_1 =	15
t_2 =	30
F =	3

Coefficient of Permeability (k) (m/s)

7.36E-03



Key:

k = Coefficient of Permeability - calculated from the general approach in 25.4.6; Method 1 (BS5930)

F = Intake Factor - calculated from Equation D, Figure 6 from BS5930

A = Cross Sectional Area of well pack

$\mathbf{H_1}$ = variable head measured at time t_1 after commencement of test

$\mathbf{H_2}$ = variable head measured at time t_2 after commencement of test

Falling Head Test

Borehole: WS110

Test No: 2 of 3

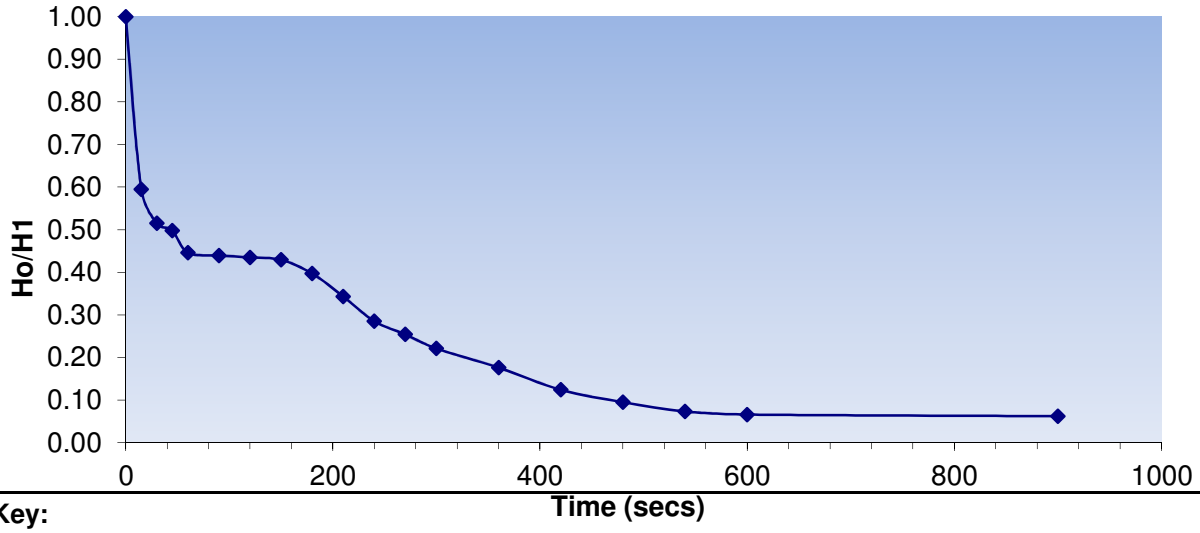
Contract No:	46009	Diameter	92	mm
Contract Title:	School St	Top Of Response Zone	0.50	m
Date of Test:	01/03/2015	Base of Response Zone	1.00	m
		Groundwater Level	1.35	m

Recorded Time			Total Time (secs)	Depth (m)	H/Ho
Hours	Minutes	Seconds			
0	0	0	0	0.00	1.000
0	0	15	15	0.41	0.595
0	0	30	30	0.49	0.515
0	0	45	45	0.50	0.498
0	1	0	60	0.55	0.446
0	1	30	90	0.56	0.439
0	2	0	120	0.57	0.435
0	2	30	150	0.57	0.429
0	3	0	180	0.60	0.397
0	3	30	210	0.66	0.343
0	4	0	240	0.72	0.285
0	4	30	270	0.75	0.254
0	5	0	300	0.78	0.221
0	6	0	360	0.82	0.176
0	7	0	420	0.88	0.124
0	8	0	480	0.91	0.095
0	9	0	540	0.93	0.073
0	10	0	600	0.93	0.066
0	15	0	900	0.94	0.062

H_0 =	1.000
H_1 =	0.595
H_2 =	0.515
t_1 =	15
t_2 =	30
F =	1

Coefficient of Permeability (k) (m/s)

1.57E-03



Key:

k = Coefficient of Permeability - calculated from the general approach in 25.4.6; Method 1 (BS5930)

F = Intake Factor - calculated from Equation D, Figure 6 from BS5930

A = Cross Sectional Area of well pack

H_1 = variable head measured at time t_1 after commencement of test

H_2 = variable head measured at time t_2 after commencement of test

Falling Head Test

Borehole: WS114

Test No: 3 of 3

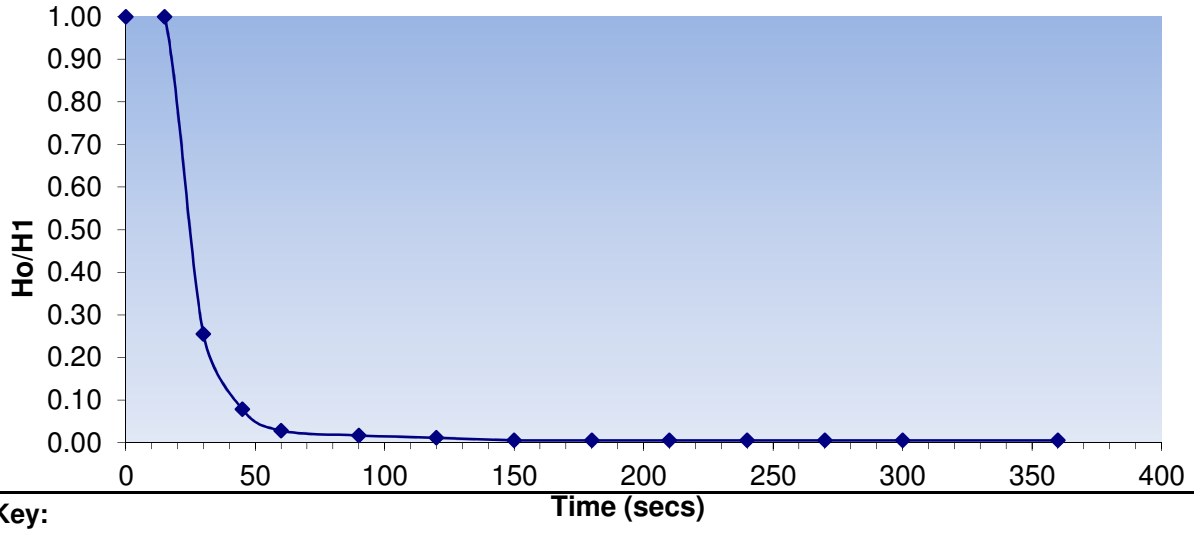
Contract No:	46009	Diameter	92	mm
Contract Title:	School St	Top Of Response Zone	0.50	m
Date of Test:	01/03/2015	Base of Response Zone	1.50	m
		Groundwater Level	1.13	m

Recorded Time			Total Time (secs)	Depth (m)	H/Ho
Hours	Minutes	Seconds			
0	0	0	0	0.00	1.000
0	0	15	15		1.000
0	0	30	30	0.84	0.255
0	0	45	45	1.04	0.079
0	1	0	60	1.10	0.028
0	1	30	90	1.11	0.017
0	2	0	120	1.12	0.012
0	2	30	150	1.12	0.005
0	3	0	180	1.12	0.005
0	3	30	210	1.12	0.005
0	4	0	240	1.12	0.005
0	4	30	270	1.12	0.005
0	5	0	300	1.12	0.005
0	6	0	360	1.12	0.005

H_0 =	1.130
H_1 =	1.000
H_2 =	0.255
t_1 =	15
t_2 =	30
F =	2

Coefficient of Permeability (k) (m/s)

4.17E-04



Key:

k = Coefficient of Permeability - calculated from the general approach in 25.4.6; Method 1 (BS5930)

F = Intake Factor - calculated from Equation D, Figure 6 from BS5930

A = Cross Sectional Area of well pack

H_1 = variable head measured at time t_1 after commencement of test

H_2 = variable head measured at time t_2 after commencement of test

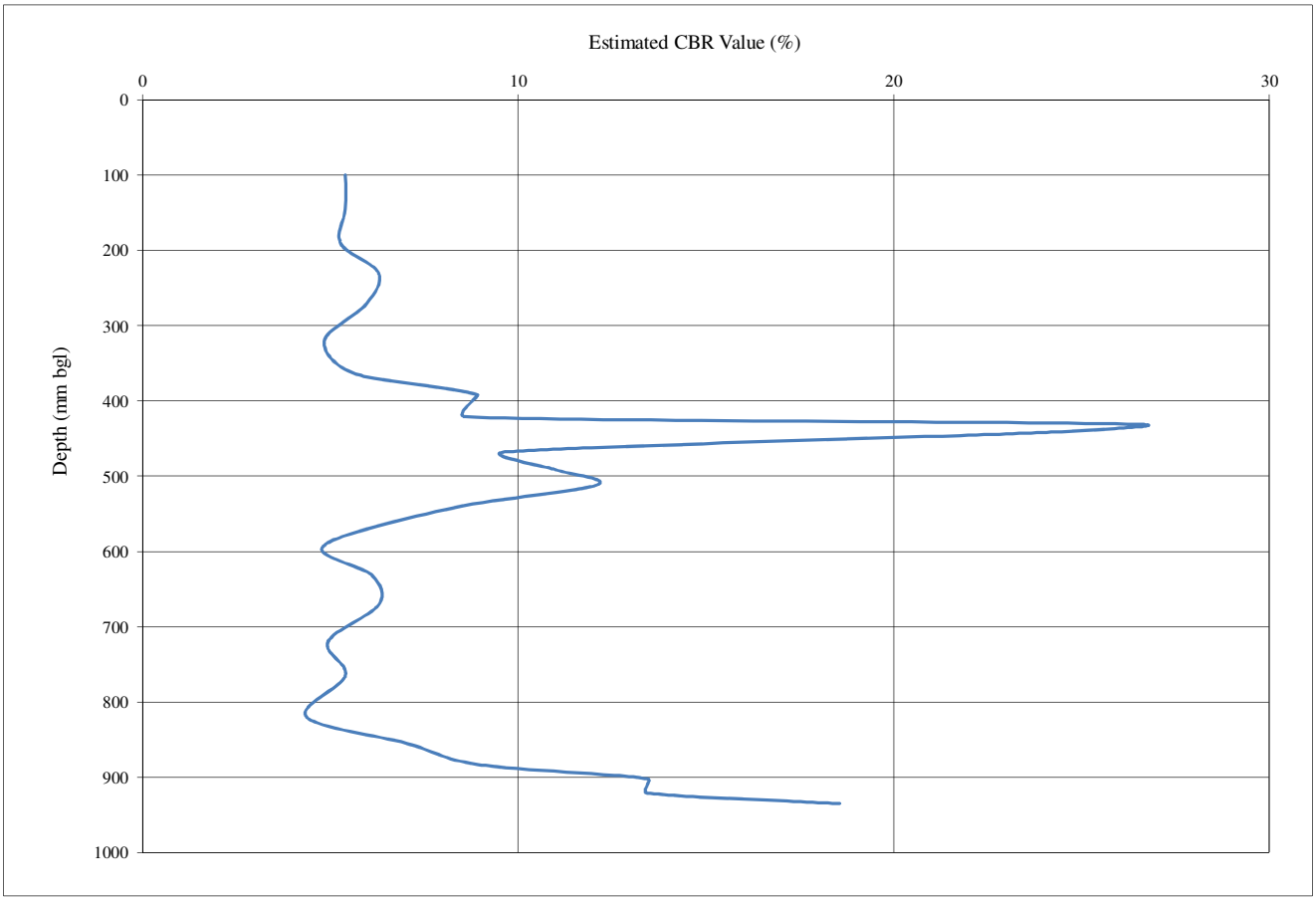
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	935	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	321	**5**	5	44	6
321	592	**15**	10	27	9
592	820	**20**	5	46	5

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP101

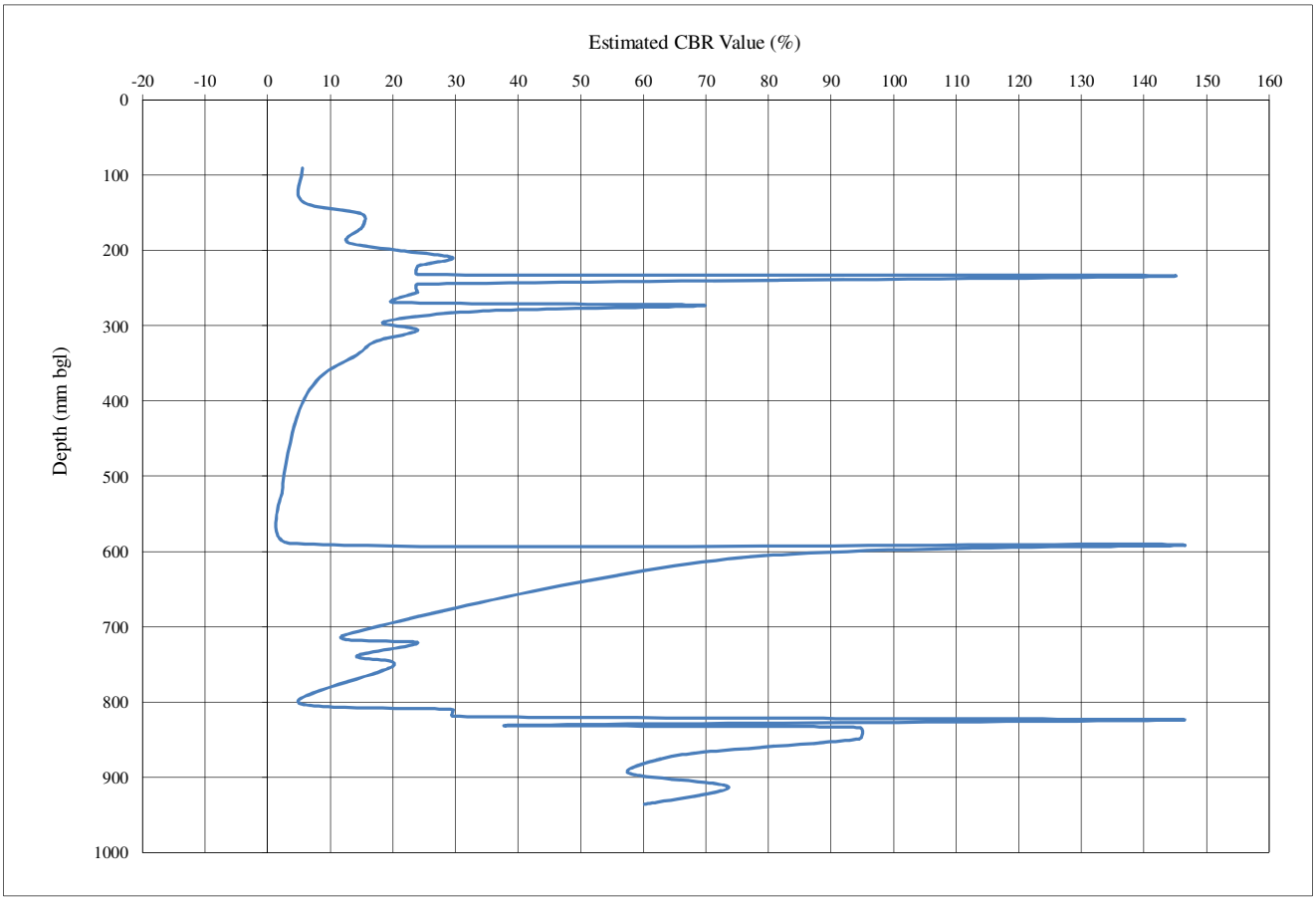
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	91	mm		
Final Depth	936	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
91	189	**4**	4	25	10
189	589	**22**	18	22	11
589	936	**68**	46	8	36

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP102

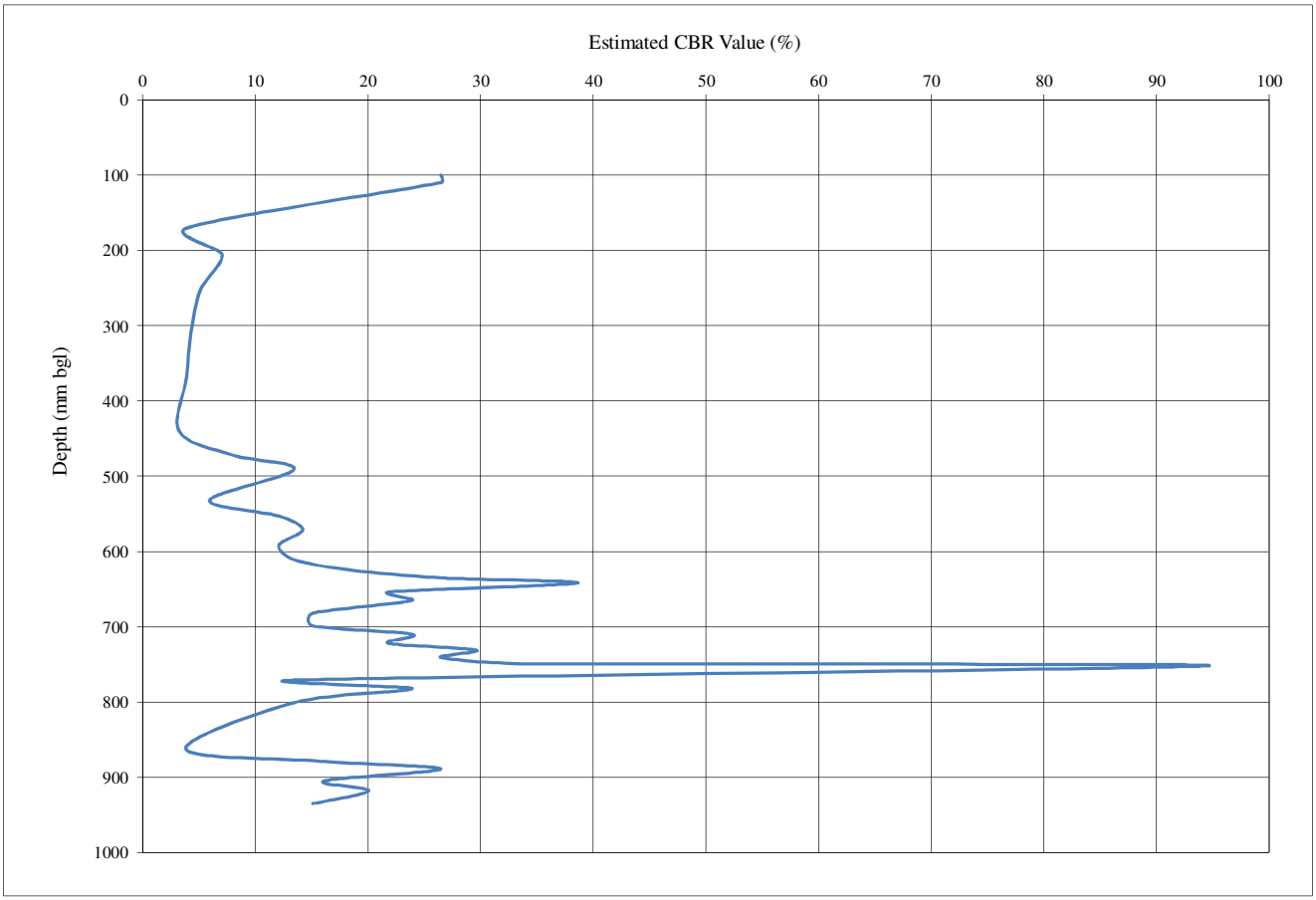
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	935	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	472	**8**	8	47	5
472	741	**25**	17	16	16
741	935	**36**	11	18	15

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP103

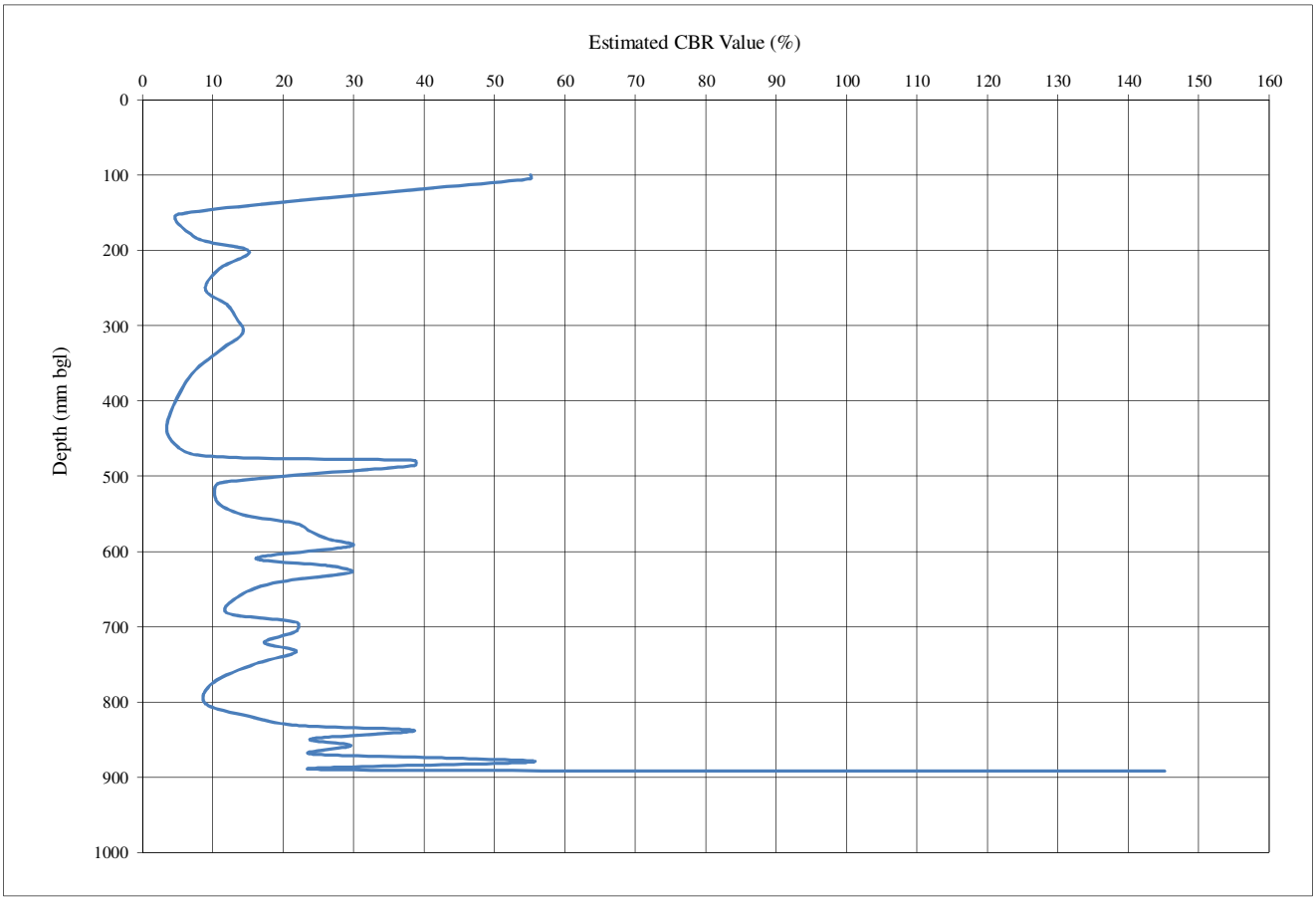
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	892	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	472	**13**	13	29	9
472	774	**34**	21	14	18
774	892	**45**	11	11	25

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP104

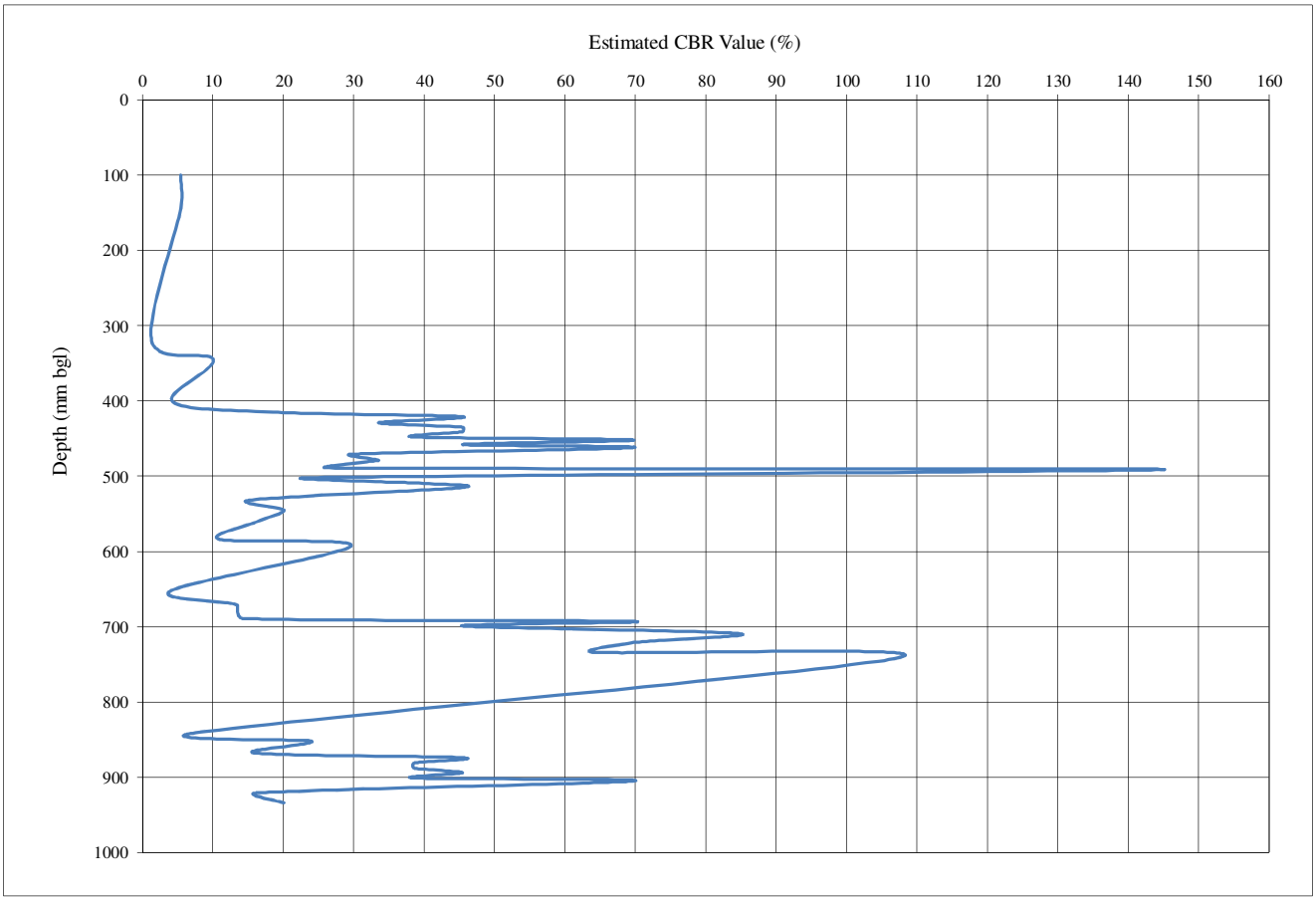
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	934	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	401	**4**	4	75	3
401	652	**26**	22	11	23
652	934	**55**	29	10	27

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP105

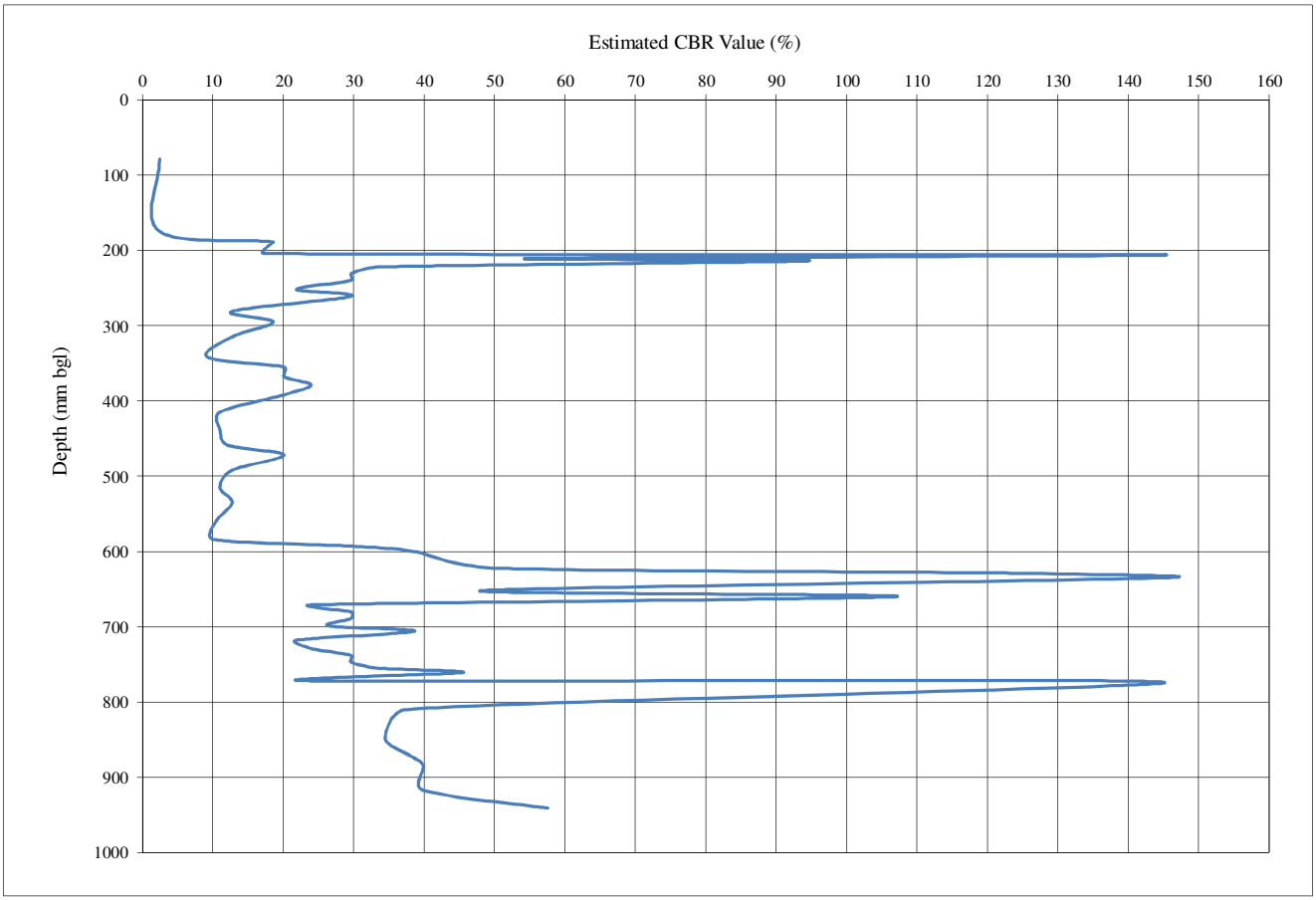
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	79	mm		
Final Depth	941	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
79	281	**12**	12	17	15
281	584	**28**	16	19	13
584	941	**84**	56	6	43

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP106

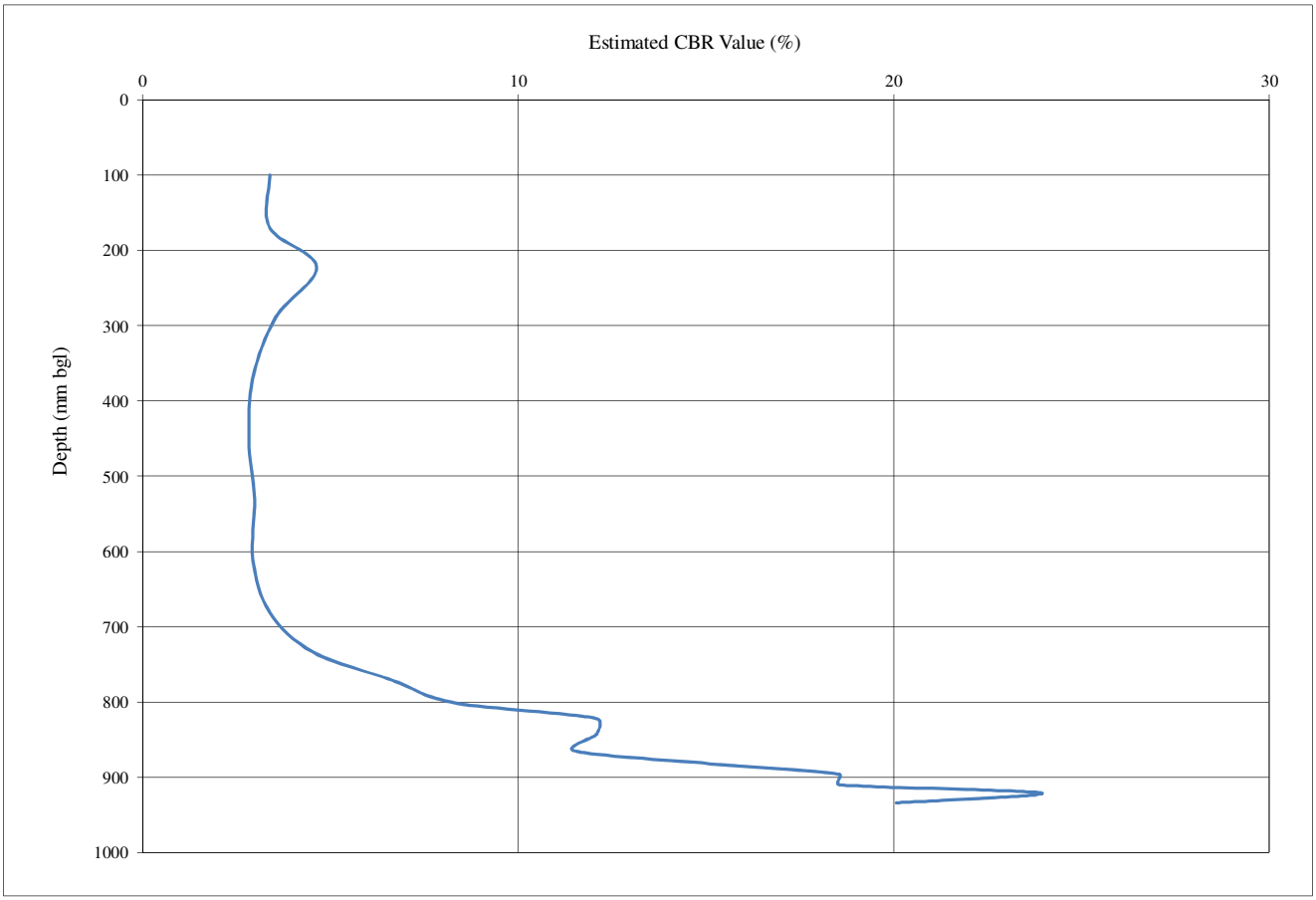
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	934	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	681	**8**	8	73	3
681	934	**19**	11	23	11

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP107

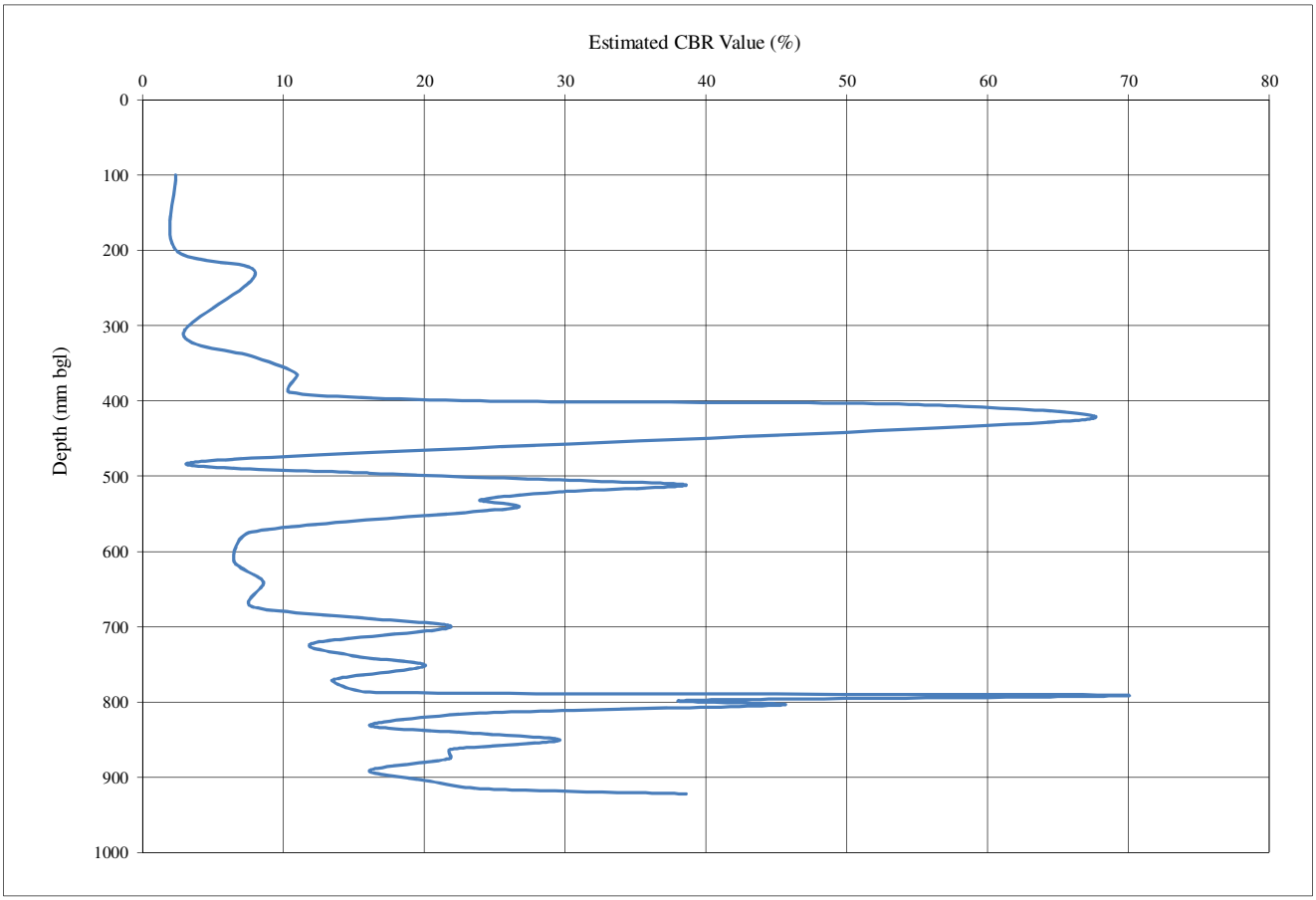
REC
Resource & Environmental Consultants Ltd

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report 587(2003) and PR/INT/277/04

Site Name	Radcliffe		**Test Date:**	31/03/2015
Site Ref	46009		**Test Location:**	DCP101
			Test No.:	1 of 1
Initial Depth	100	mm		
Final Depth	922	mm	**Undertaken By:**	M.D.

Estimated California Bearing Ratio Graph



Start Depth (mm bgl)	Finish Depth (mm bgl)	No. of Blows	Blows Per Layer	DCP mm/Blows	Avgerage CBR Value (%)
100	389	**6**	6	48	5
389	574	**21**	15	12	21
574	922	**44**	23	15	17

Comments

Site Engineer:	Date:	Checked and Approved By:	Date:
Matthew Doran	31/03/2015	N Martin	20/04/2015

Location
DCP109

APPENDIX D

LK Consult Gas Risk Assessment and Updated Remediation Strategy Report 2021

FORMER RIVERSIDE SCHOOL
SCHOOL STREET
RADCLIFFE

ADDENDUM GAS RISK ASSESSMENT
AND
UPDATED REMEDIATION STRATEGY

Job Number: LKC 20 1836
Date: January 2021
Client: Bury Council



INCREASING LAND VALUE

LK GROUP

INCREASING LAND VALUE



LK GROUP

LK Consult Document Verification			
Site Address	Former Riverside School, School Street, Radcliffe, M26 3BP		
Report Title	Addendum Gas Risk Assessment and Updated Remediation Strategy		
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R1	29/01/2021	Addition of Gas monitoring data & assessment	

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1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Bury Council to carry out an Addendum Gas Risk Assessment and Updated Remediation Strategy for the Former Riverside School, Radcliffe site. The investigation was undertaken to aid in the remediation of the site and to support a future planning application to develop the site for residential use.

The following work has previously been undertaken:

- Phase I & II Geo-Environmental Site Investigation undertaken by REC (ref: 46009P1R0, dated April 2015).
- Desk Based Coal Mining Risk Assessment undertaken by LKC (ref: CL-602-LKC 20 1836-01, dated December 2020).
- Report on Coal Mining Related Site Investigation Works undertaken by The Land Consultancy Limited (ref: T010 SFK (TLC1135) rep BS LKConsult 120121, Dated January 2021).

The Phase I and II Geo-Environmental Site Investigation carried out by REC (the REC report) comprised a detailed site investigation, risk assessment and remediation strategy. However, the gas monitoring survey comprised only a single visit and consequently a robust gas risk assessment was not completed. The report recommended that further monitoring was required.

This investigation has been undertaken to carry out the recommended further gas monitoring, provide a robust gas risk assessment and update the remediation strategy accordingly.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figures 1 and 2 indicate the site location and boundary.

Location	Adjacent to the east of Millwood School, to the north of junction between Pendlebury Street and School Street, Bury. Centred at approximate National Grid Reference 378045E 4071484N.
Approximate Area	2.35Ha.
Topography	70-75 metres Above Ordnance Datum (AOD). Site is approximately level.
Current Land Use	Site Former school (now demolished). Waverly Place Sheltered Housing unit in the southeast of the site (disused). Surrounding Area North: 'Beesley & Fildes Ltd' (construction supplier). East: Ulundi Street, electricity substation, residential houses. South: School Street, residential housing. West: Millwood SEN School.
Proposed Development	Residential housing.

Table 1-1. Summary of site details.

2 Previous Work

The REC report should be read in conjunction with this report. The REC investigation comprised 15no. window sample boreholes and 22no. machine excavated trial pits. The majority of those locations were spread across the site to investigate baseline conditions, made ground and relic structures. 2no. investigation locations were positioned close to historic tanks while 2no. further investigation locations were positioned close to existing substations.

A total of 15no. soil samples were submitted for a range of chemical testing including heavy metals, PAHs, TPHCWG, PCBs, BTEX and asbestos.

A total of 9no. boreholes were installed for gas and groundwater monitoring. A single round of gas monitoring was subsequently carried out.

It should be noted that the investigation location plan is missing from the REC report, however LKC have reviewed the logs and the results and no 'hotspots' or isolated areas of contamination were identified. The made ground was noted right across the site with no discernible pattern to depth or type noted in the logs. The strata identified by LKC is a match for the strata identified by the REC investigation. Therefore, LKC do not consider the absence of the REC investigation plan to be significant.

2.1 Conclusions

2.1.1 Human Health Risk Assessment

The REC Investigation identified exceedances for heavy metals (arsenic and lead) PAHs (Benzo (b/k)fluoranthene, benzo(a)pyrene and Dibenzo(a,h)anthracene and that remediation would be required.

No evidence of VOCs, SVOCs, PCBs or hydrocarbons were detected during the investigation works.

The report determined that '*in the case of each of the above determinants the primary exposure pathway is ingestion.*

In order to sever the direct contact pollutant linkage the report recommended that exposure pathway to the end user will be broken in areas of hardstanding and buildings. A 600mm clean cover in areas of soft landscaping will break the pathway to future end-users of the site. Where hardstanding is proposed (whether it is buildings or car parking) it will remove the direct pollutant linkage between the Made Ground and end users, and therefore, remove the risk. Given the relatively shallow nature of the Made Ground at the site, a programme of 'soil inversion' could be undertaken at the site to win the necessary 'sub-soil cover'.

Construction workers involved in the groundworks and construction during the site redevelopment are at risk from exposure to contaminated soils given their close proximity and contact with the soil which may result in a short term human health risk from the detected contaminants. The primary contaminant exposure pathways are considered to be dermal contact, indirect soil ingestion and inhalation of soils dusts and vapours. These risks can be reduced by appropriate PPE and hygiene precautions and good working practices. It is recommended that normal health and safety procedures should be adopted by groundworkers including no eating, drinking or smoking on-site, designated clean and wash areas and protective clothing.

Movement of impacted soils around the site will require a Materials Management Plan to be undertaken for the site. The Materials Management Plan (MMP) is a document designed in accordance with the Development Industry Code of Practice (COP) "The Definition of Waste", published by Contaminated Land: Application in Real Environments (CL:AIRE). The COP relates to the re-use of chemically and geotechnically suitable materials where a definitive need has been established as part of the development process'.

2.1.2 *Controlled Waters Risk Assessment*

The report concluded that the risks posed to the bedrock aquifer are considered to be low for the following reasons:

- *The exceedances recorded at the site were marginal;*
- *The natural superficial deposits comprise bands of impermeable Clay and have been designated as Unproductive;*
- *There is therefore considered to be a low potential for the vertical migration of contaminants to the underlying bedrock aquifer; and,*
- *There are no drinking water abstraction licenses within 2km of the site.*

The risks posed to surface waters are considered to be low for the following reasons:

- *There was only one exceedance recorded for one determinant at the site;*
- *The nearest recorded surface water course with potential hydraulic continuity with the site is the River Irwell located in excess of 280m away; and,*
- *Due to the presence of Clays beneath the site restricting the lateral migration of contaminants and the distance to the receptor, the potential for hydraulic continuity between the site and receptor is considered to be low.*

Based on the above no remediation with respect to Controlled Waters was recommended.

2.2 Ground Gas

Only a single round of gas monitoring was carried out during the investigation works. The report concluded that based on the existing data no gas protection measures would be required however it acknowledged that this was not a suitable or sufficient monitoring period. As such completion of a suitable gas monitoring regime was recommended.

2.3 Geotechnical Assessment

2.3.1 *Foundations*

REC concluded:

The use of ground improvement techniques such as vibro stone columns will allow shallow foundations to be utilised within the Made Ground. The vibro stone columns should provide a bearing capacity of around 150kN/m2 and will also remove variability within the Made Ground. Specialist advice should be sought from a suitably experienced contractor with regard to allowable bearing capacity and settlements. Alternative options include raft foundations and piled foundations.

2.3.2 *Pavement Design*

REC concluded:

Due to the inherent variability at road formation level (4%-28% CBR) due to the non-homogenous nature of Made Ground at the site, REC would recommend that CBR values are re-assessed using on-site plate load tests of the formation level during the construction phase.

2.3.3 *Drainage Design*

REC concluded that a combination of the underlying natural low permeability Clay and encountered perched water across the site will preclude the use of soakaways for the disposal of surface water runoff at the site.

2.3.4 *Excavations*

The REC report noted:

Groundwater was recorded predominantly in the Sand horizons across the site with occasional perched bodies at the Made Ground / Natural Ground interface. Any foundation, drainage or service excavations may require support and sump pumping. However, in some areas of the site groundwater ingress is likely to be rapid and may have to be dealt with by well point dewatering methods. If significant pumping is required, consideration should be given to the potential off-site geotechnical impact to surrounding properties of dewatering in granular material.

2.3.5 *Concrete Design Class*

REC concluded that Concrete design sulphate class DS-1 and ACEC AC-1 classifications apply.

3 Additional Ground Investigation

3.1 Site Investigation Design and Methodology

In order to carry out a detailed assessment of the ground gas regime LKC drilled an additional 10no. window sample boreholes across the site. The boreholes were drilled to between 3.95mbgl and 5.45mbgl and installed with gas monitoring wells.

The monitoring wells were installed in accordance with BS10175 and CIRIA C665[1] and generally comprised approximately 1m plain pipe over a length of slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

The response zones for the window sample boreholes were installed along the entire length of the borehole to assess both shallow and deep potential sources of gas. Given the limited depth of made ground (generally 0.5-1.0m thick) only 6 of the 10 monitoring wells included made ground strata. Given the nature of the made ground (predominantly ash, clinker, concrete and brick)

The investigation locations are illustrated on Figure 2 while the Well installation details are provided in Profile Logs in Appendix A.

LKC agreed with the local authority Contaminated Land Officer that if gross or unexpected contamination was identified then additional samples would be collected and submitted for appropriate environmental testing.

LKC did not identify any unexpected contamination (such as hydrocarbons), as such no additional contamination testing was carried out.

3.2 Gas Monitoring

All the installed boreholes have been continuously monitored over a continuous 3 week period by Ground Gas Solutions (GGS) using Gas Clams and Gas Sentinels. The monitoring has been undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions.

The gas monitoring results are shown in Appendix B and have been assessed in Section 5.

[1] CIRIA (2007). “Assessing Risks Posed by Hazardous Ground Gases to Buildings.” CIRIA C665.

4 Ground Conditions

4.1 Geology – Generalised Sequence

The ground conditions beneath the site comprised made ground underlain by natural sandy clay and clayey sands. A summary section of the logs is provided in Plate 4-1, with additional comments below.

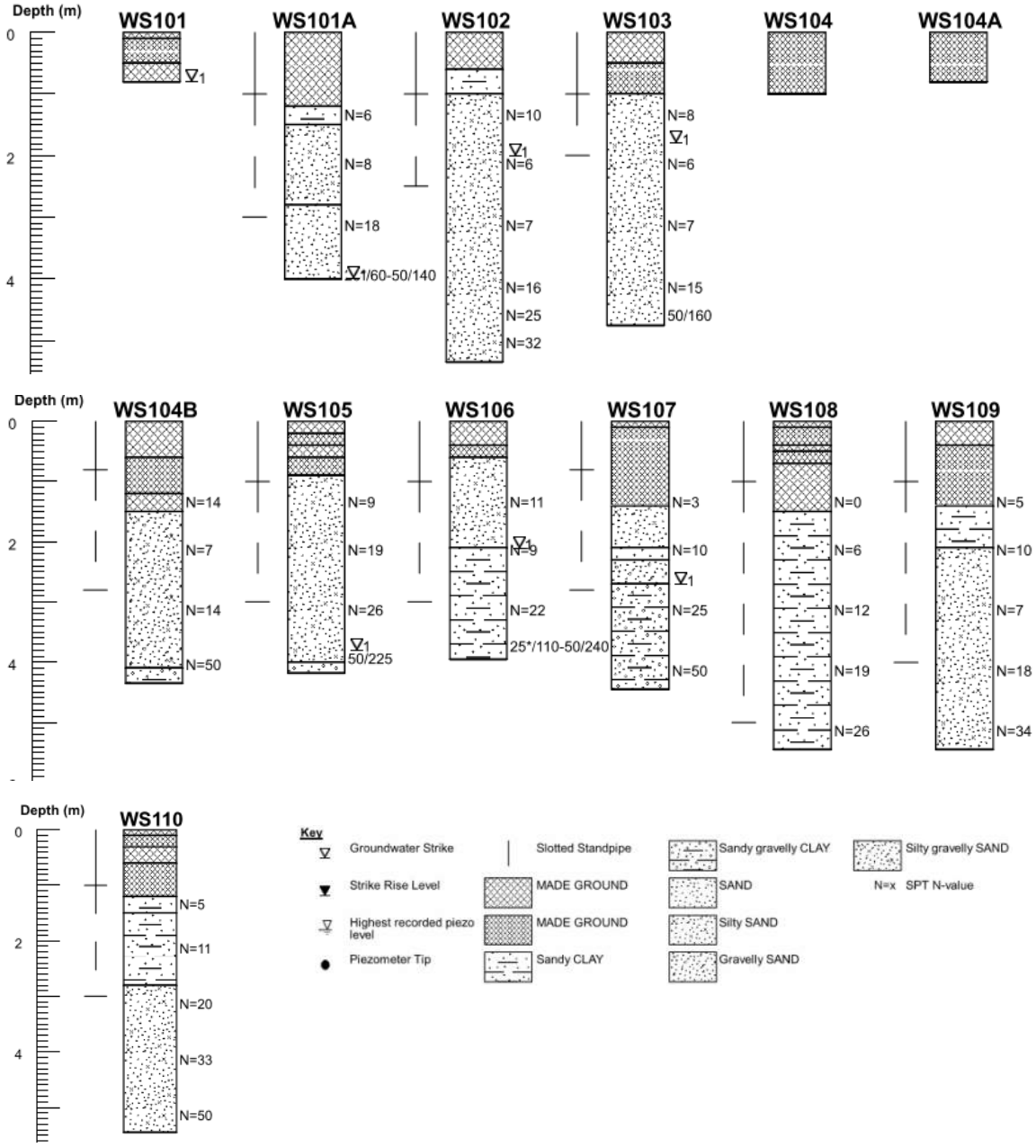


Plate 4-1: Summary of ground conditions.

- Made ground was recorded from depths of 0.6-1.5mbgl and generally consisted of gravelly sand or sandy gravel with brick, ash and clinker.
- In-ground structures were identified in WS101, WS104 and WS104A.

Similar structures and obstructions may be present across the site where former buildings were present.

4.2 Additional Geotechnical Assessment

LKC have reviewed the geotechnical assessment carried out within the REC report and are generally in agreement with the findings. It should be noted that a number of the REC options and the options below can only be carried out once a development layout has been determined.

In addition the earthworks contractor should give consideration establishing a developable platform for low rise housing. This must take into account the potential for encountering running sands and the need to de-water when grubbing out remnant basements and foundations.

The contractor should be responsible for establishing the suitability for re-use of materials as part of any earthworks by lab testing in accordance with SHW600 – the suitability of the material should be validated by a third party.

If doing the works to allow development then earthworks should be done in accordance with an end product specification (EPS) and the contractor will need to allow suitable time and cost to undertake trials of compaction to ensure they can meet with the EPS (to be done by third party).

An assessment of the REC logs combined with the LKC logs indicated that there does not appear to be any pattern to the mix of Made Ground, or natural ground granular and cohesive deposits, therefore LKC would look to agree with the REC conclusion to use a ground improvement technique in order to create a uniform bearing stratum.

This will likely require the need for a piling mat to be included so contractors should include for the design and placing/maintaining of a pile mat for the ground improvement plant. Stone columns would also remove the potential for the foundations to be affected by volume change of the clay deposits.

5 Gas Risk Assessment

Continuous gas monitoring has been carried out in all 10no. boreholes by Ground Gas Solutions (GGS) over a 3 week period from the 21st December 2020 to the 12th January 2021.

The collection of data on a continuous basis produces a wealth of information providing a direct continual comparison between flow rate, atmospheric pressure and gas generation rather than the individual 'snap shots' provided by periodic monitoring visits. In this case between 448 and 528 individual readings were collected during the monitoring period which included periods of heavy rainfall and significant falls in atmospheric pressure. The monitoring period included a 58millibar (mb) drop in atmospheric pressure over a 38 hour period falling from 1021mb to 963mb.

Table 5-1 summarises the results of the gas monitoring. The full data set is presented in Appendix B which includes a graphic representation of the data readings collected for each borehole during the monitoring period.

Boreholes	No. of Samples	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	H_2S (ppm)	CO (ppm)	Flow (l/h)	Pressure (mb)
WS101A	503	0.0-0.4	0.2-1.9	16.5-18.8	0	0-1	-0.01 to -0.05	958-1022
WS102	504	0.0-1.4	0.0-1.3	19.0-20.7	0-1	0-12	-0.01 to 0.10	947-1031
WS103	502	0.0-0.3	0.1-1.0	0*	0	0	-0.01 to 0.02	958-1022
WS104B	503	0.0-2.2	0.1-3.9	14.5-18.6	0-1	0-17	-0.04 to 0.02	958-1022
WS105	509	0.0-0.0	0.0-0.2	18.7-19.9	0-1	0	-0.05 to 0.06	957-1020
WS106	454	0.0-1.5	0.0-0.0	16.5-21.5	0	0-34	-0.54 to 0.30	957-1021
WS107A	503	0.1-3.6	0.1-0.2	13.9-19.8	0-1	0-1	-0.03 to 0.00	958-1022
WS108	448	0.0-1.2	0.0-0.7	15.5-20.7	0	0-9	-0.38 to 0.50	958-1021
WS109	526	0.0-0.0	0.0-3.8	10.7-18.3	0-1	0-20	**	956-1021
WS110	528	0.0-0.0	0.0-3.1	11.6-20.6	0	0	-0.16 to 0.09	95801022

Table 5-1 Summary of the gas monitoring data.

*WS103 registered between 0.0 and 0.1% oxygen throughout the monitoring period. It is believed that the equipment was damaged due to being submerged in water. Given that no other incidents of comparable oxygen reduction have been recorded this reading is not thought to be representative of the data and has not been included in the risk assessment.

**The flow meter in WS109 was damaged during the monitoring period by being fully submerged in water, as such all data was lost.

Due to time constraints, a period of equilibration following drilling was not feasible. Dataloggers were deployed within 24hours after installation of the monitoring. Early time data, particularly including initial peaks of CO identified across the site during the first 24-48 hours, are likely reflective of short term effects caused by drilling and do not reflect longer term ground gas conditions. All elevated CO concentrations were noted within this first 24-48 hour period after which they rapidly dropped to below 5ppm and remained low for the rest of the monitoring period.

Gas Screening Value

In accordance with CIRIA C665[2], a Gas Screening Value (GSV) may be calculated. Assuming worst-case scenario maximum gas concentrations and flow for each borehole have been used to calculate the GSV. The GSV can be used to determine the characteristic situation (CS).

Table 5-2 shows the maximum GSV for each borehole and the appropriate characteristic situation (based on GSV only).

Boreholes	Max GSV (l/hr)	CS / TL
WS101A	0.00095	CS1 / Green
WS102	0.0014	CS1 / Green
WS103	0.0002	CS1 / Green
WS104B	0.0078	CS1 / Green
WS105	0.00012	CS1 / Green
WS106	0.0081	CS1 / Green
WS107A	0.00117	CS1 / Green
WS108	0.006	CS1 / Green
WS109	0.02052*	CS1 / Green
WS110	0.00496	CS1 / Green

Table 5-2: Summary of worst-case Gas Screening Values (GSV).
Notes:
CS – Characteristic Situation; TL= Traffic Light.
*no flow due to equipment failure so a worst case site flow rate has been assumed to calculate the GSV.

In addition, in accordance with CIRIA C665[3], if carbon dioxide and methane are recorded above 5%v/v and 1%v/v respectively, you should consider upgrading the characteristic situation from CS1 to CS2.

Carbon dioxide does not exceed 5% in any borehole during the monitoring period however methane is recorded in excess of 1%. Table 5-3 shows the percentage of readings where methane is recorded above 1% and then the number of readings in excess of 2%.

Boreholes	Percentage of readings above 1% methane	No. of Readings above 2% methane
WS102	39.9%	0
WS104B	33%	12
WS106	39.5%	17
WS107A	5.2%	0
WS108	0.7%	0

Table 5-3: Percentage of readings above 1% methane.

Although the flow rate was consistency low due to the number of readings were methane was in excess of 1% LKC consider that in this case, the site should be treated as CS2.

The gas can potentially migrate into buildings, accumulate in confined spaces and cause explosions (methane) and asphyxiation. LKC consider the probability of methane gas affecting site users and buildings as low likelihood. Assuming a severe

[2] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[3] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

consequence, there is a moderate risk associated with Pollutant Linkage 3 and remediation is required.

6 Conclusions

6.1 Geotechnical

The REC report states that: '*The use of ground improvement techniques such as vibro stone columns will allow shallow foundations to be utilised within the Made Ground. The vibro stone columns should provide a bearing capacity of around 150kN/m^2 and will also remove variability within the Made Ground. Specialist advice should be sought from a suitably experienced contractor with regard to allowable bearing capacity and settlements. Alternative options include raft foundations and piled foundations.*

Due to the inherent variability at road formation level (4%-28% CBR) due to the non-homogenous nature of Made Ground at the site, REC would recommend that CBR values are re-assessed using on-site plate load tests of the formation level during the construction phase.

Groundwater was recorded predominantly in the Sand horizons across the site with occasional perched bodies at the Made Ground / Natural Ground interface. Any foundation, drainage or service excavations may require support and sump pumping. However, in some areas of the site groundwater ingress is likely to be rapid and may have to be dealt with by well point dewatering methods. If significant pumping is required, consideration should be given to the potential off-site geotechnical impact to surrounding properties of dewatering in granular material.

Concrete design sulphate class DS-1 and ACEC AC-1 classifications apply'

6.2 Contamination Assessment

The REC report demonstrated the presence of heavy metals and PAHs in excess of the residential with plant uptake assessment criteria. The report concluded that is risk to human health via direct contact is present on site.

The report went on to state that this pollutant linkage can be broken via either hardstanding (carparks, pavements or housing) and a capping layer within proposed gardens and areas of soft landscaping.

The report demonstrated that there was no risk to controlled waters.

The gas risk assessment indicates that there is a risk from methane and that gas protection measures (CS2) will be required across the site.

Table 6-1 shows a summary contamination conceptual model based upon the results of the REC and LKC investigation works. The Risk Matrix is provided in Appendix D.

Pollutant Linkage		Risk	Recommendations
Human Health	Contaminants posing a risk to site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	**Moderate**	- Elevated heavy metals and PAHs identified across the site. - **Recommendations:** Remediation required in garden and soft landscaping areas.
		Low	- No elevated petroleum hydrocarbons or asbestos identified. - **Recommendations:** No remediation required.
	Volatile contaminants posing a risk to site users via the inhalation of vapours.	**Low**	- No evidence of volatile contaminants. - **Recommendations:** No remediation required.
Gas risk	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	**Moderate**	- Elevated methane above 1% recoded in a number of locations for prolonged periods. - **Recommendations:** CS2 gas protection measures required.
Controlled Waters	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	**Low**	- No elevated contaminants identified in groundwater. - **Recommendations:** No remediation required.
Buildings	Sulphate posing a risk to building via direct contact (sulphate attack).	**Low**	- Elevated sulphate identified in parts of the site. - **Recommendations:** No sulphate concrete required (DS-1 AC-1) to be confirmed by a suitably qualified structural engineer.
Potable Water Pipe	Organic contaminants posing a risk to water pipes.	**Moderate**	- Organic contamination identified at potable pipe depth of 0.75-1.35mbgl. - **Recommendations:** UU risk assessment to be completed. The site will likely require barrier piping.
Plants	Phytotoxic metals posing a risk to flora via root uptake.	**Low**	- No phytotoxic metals above generic criteria. - **Recommendations:** No remediation required.

Table 6-1 Summary Contamination Conceptual Model

7 Recommendations and Remedial Strategy

The recommendations provided below are considered appropriate for the site based on the site investigation work undertaken by both LKC and REC. LKC should stress that no remediation, enabling works or designing works should take place until Regulatory approval has been obtained.

7.1 Remediation and Validation Recommendations

Tables 7-1 and 7-2 detail the further works and remedial recommendations / requirements. The tables shows work required post-demolition of building(s), pre-construction (i.e. during earthworks) and during / post construction.

7.1.1 Pre-Construction Phase

Remediation Requirements	Validation Requirements
Demolition / Foundation removal Demolition of remaining structures, grubbing out / removal of any remaining foundations / drains / brick / concrete where required and practicable. Concrete and brick should be crushed to an appropriate standard, stockpiled and tested for re-use or disposal.	Chemical testing should include (as a minimum): Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen. Required sampling rates are shown in table 7-3
Topsoil Significant topsoil was not noted during the site investigation however where present topsoil should be stockpiled and tested for re-use or disposal.	Chemical testing should include (as a minimum): Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE. Required sampling rates are shown in Table 7-3
Earthworks Inspections / Unexpected Contamination The relevant contractors should be briefed that during excavation works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at the site, LKC and the Local Authority should be informed, and further assessment of the material may be required.	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.

7.1.2 Build-Phase Construction

Receptor	Remediation Requirements	Validation Requirements
ALL	Earthworks Inspections / Unexpected Contamination The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.

	the site, LKC and the Local Authority should be informed, and further assessment of the material may be required.	
Human health	Environmental Cover System Where made ground is relatively deep, it is unlikely to be viable to remove the contaminated soils. Therefore, an environmental cover system is recommended. The environmental cover system should be as follows: **Private Back Gardens: 600mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 500mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 600mm comprising clean inert fill and sufficient topsoil for a growing medium. **Private Front Garden / Shared Landscaping: 300mm thick environmental cover system comprising:** **Either** 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 200mm comprising clean inert fill and sufficient topsoil for a growing medium. **Or** geotextile membrane and at least 300mm comprising clean inert fill and sufficient topsoil for a growing medium. The subsoil layer can be replaced by additional topsoil. A diagram of a typical environmental cover system is shown in Appendix C. **Areas of TPO's** Please note where there are TPO's in influencing distance of the gardens it is likely the arboriculture officer may only allow a 150mm clean cover system over a geotextile membrane.	Option 1 Consignment notes confirming the removal of made ground. Photographic evidence of natural strata. Chemical validation of imported soils: See Table 6-2. Option 2 Measuring depth of environmental cover system using a staff and providing photographic evidence. Photographic evidence of the granular physical break or geotextile layer will also be collected. Chemical validation of imported soils: See Table 7-2.

Gas	Gas Protection Measures In line with CS2 as per UK guidance[4,5]. This is likely to / should include: • Passive subfloor or active subfloor ventilation system. • Methane and carbon dioxide resistant membrane installed as per manufacturer's instructions. Add IF required • Ventilation of confined spaces within the building. • Well-constructed reinforced suspended, raft or cast in situ ground slab. • Minimum penetration of ground slab by services. • All joints and penetrations to be sealed. Depending on the type of building and foundation design the protection measures can vary. The gas protection measures will be detailed and approved with the Local Authority once the foundation design has been confirmed.	Supply and review of foundation designs. Photographic evidence of sub-floor void, ventilation and suitably sealed gas membrane. Validation of gas protection measures should be in line with CIRIA 735[6]
Water Supply	Potable Water Pipes It is recommended that a United Utilities Water Pipeline Assessment is undertaken once the location and depth of potable water pipes are known. It is likely that barrier pipe will be required.	Delivery Notes of Pipe Material. Photographs of the Installed Pipe.
Other	No remediation anticipated with respect to inhalation of vapours, controlled waters and phytotoxicity.	N/A.

Re-use of site won material

To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered.

This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used [7]):
5,000 tonnes (*c.* 2,500m^3) treatment of crushed concrete / stone.
1,000 tonnes (*c.* 500m^3) use of non-hazardous soil
5,000 tonnes (*c.* 2,500m^3) use of clays, sand, gravel, brick, concrete, stone etc.
50,000 tonnes (*c.* 25,000m^3) use of bituminous material to be used in roadways.

A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered **before** material movement starts onsite.

If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'.

For all the above material will need to be tested at the rate and analytical suites presented in Table 6-3.

Health and Safety Considerations

[4] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665
[5] BSI (2015). "Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for new buildings." BS8485:2015.
[6] CIRIA (2014). "Good Practice on the Testing and Verification of Protection Systems for Building Against Hazardous Ground Gas". CIRIA C735.
[7] https://www.gov.uk/guidance/waste-exemptions-using-waste

In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance[8]) should be adopted by all workers involved with site enabling and construction works.

Table 9-1: Remediation and validation requirements
Notes: See Table 6-3 for Receptor details.

7.2 Validation of Subsoil / Topsoil

Chemical validation of all imported soils to be used on site in gardens and soft landscaping areas should be undertaken. Imported soils should be accompanied by a certificate of analysis and source details.

A summary of the required imported material sampling requirements is presented in Table 6-3. Ideally, the material should be sampled at source to prevent double handling if soil fails, with confirmatory sampling undertaken on importation to site. However, where this is not possible then material imported should be segregated based on source and soil type. Validation samples should be taken prior to placement in gardens to ensure suitability for use.

[8] HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

Material Type	Source	Suite of Analysis	Sampling Rate*
Topsoil	Greenfield	Suite A	1 sample per 50m^3
	Brownfield / Unknown	Suite B	
Subsoil	Brownfield / Unknown	Suite B	1 sample per 150m^3
	Site won natural material / greenfield	Suite A	
Physical Stone Break Layer	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.	
	Recycled Stone (6F2 / screened)	Suite B	1 sample per 500m^3

Table 7-3: Sampling requirements for imported soils.

Notes:

Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.

Suite B - Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.

*Minimum sampling rate of 3 samples per source.

Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882[9]). LKC advise this information is provided by the supplier before material is imported onto site.

Imported material to be used in gardens will be compared against residential with plant uptake criteria.

7.3 Site Completion Report

It is recommended that any remediation carried out on the site is validated by a third party and suitable documentary evidence provided in a Site Completion Report, such as photographs, consignment documents and analytical results. This should include as a minimum:

- Validation requirements for gas protection measures.
- Provision of waste transfer documents.
- If option 1 (source removal)): Validation of any made ground removal (photographic evidence that natural strata was reached).
- If option 2 (environmental capping layer): Validation of environmental cover system.
- Verification testing of all imported soil for garden and soft landscaping areas.
- Information on the installation of protective pipes and / or sterile trenches.
- Details of any unexpected contamination identified onsite, suitably risk assessed and / or validated.

The Site Completion Report will assist the Local Authority in the discharge of any future relevant planning condition and will also be of use to solicitors acting on behalf of any prospective conveyancer who may have concerns over the former use of the site.

[9] BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

Figures

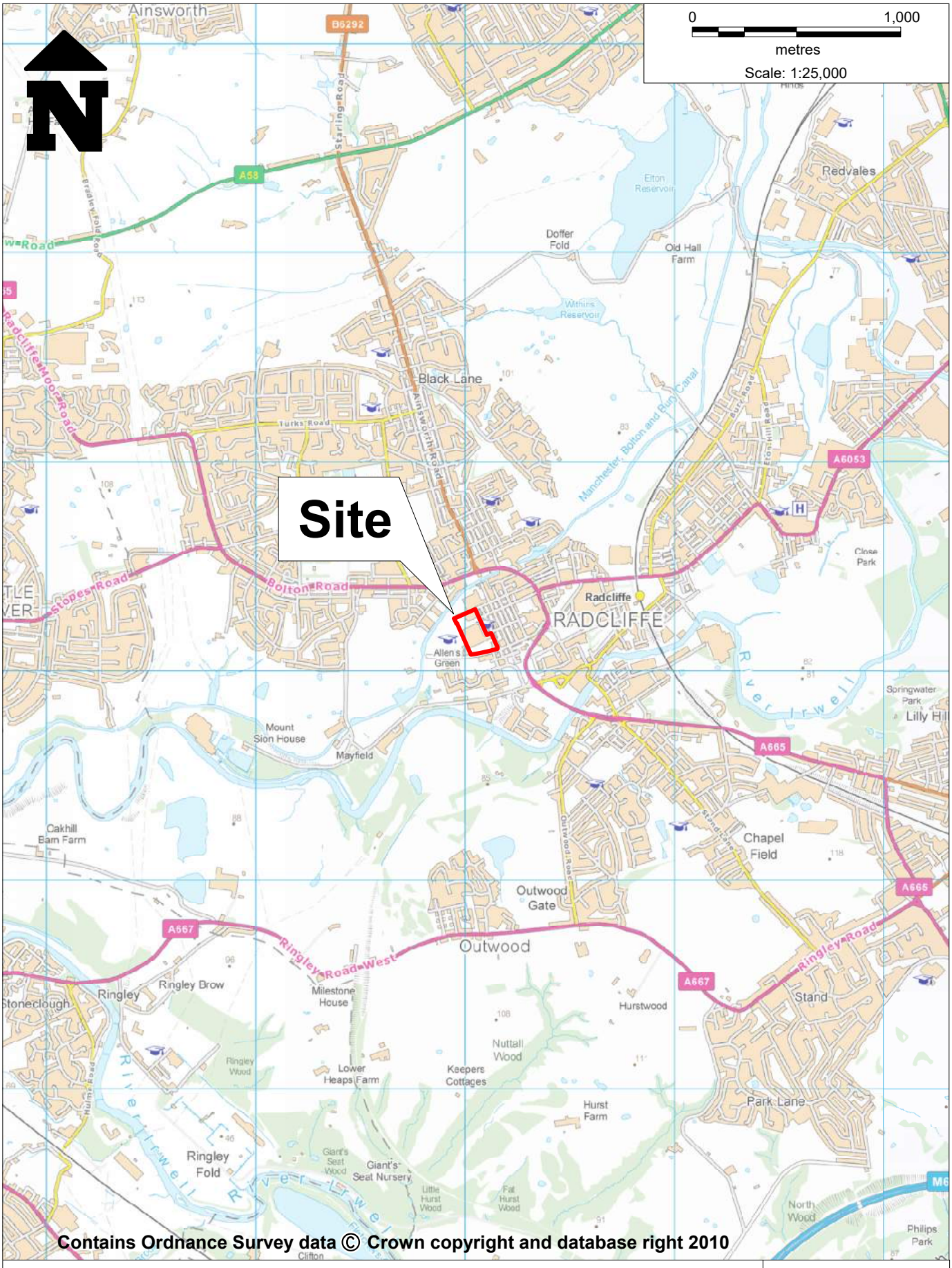
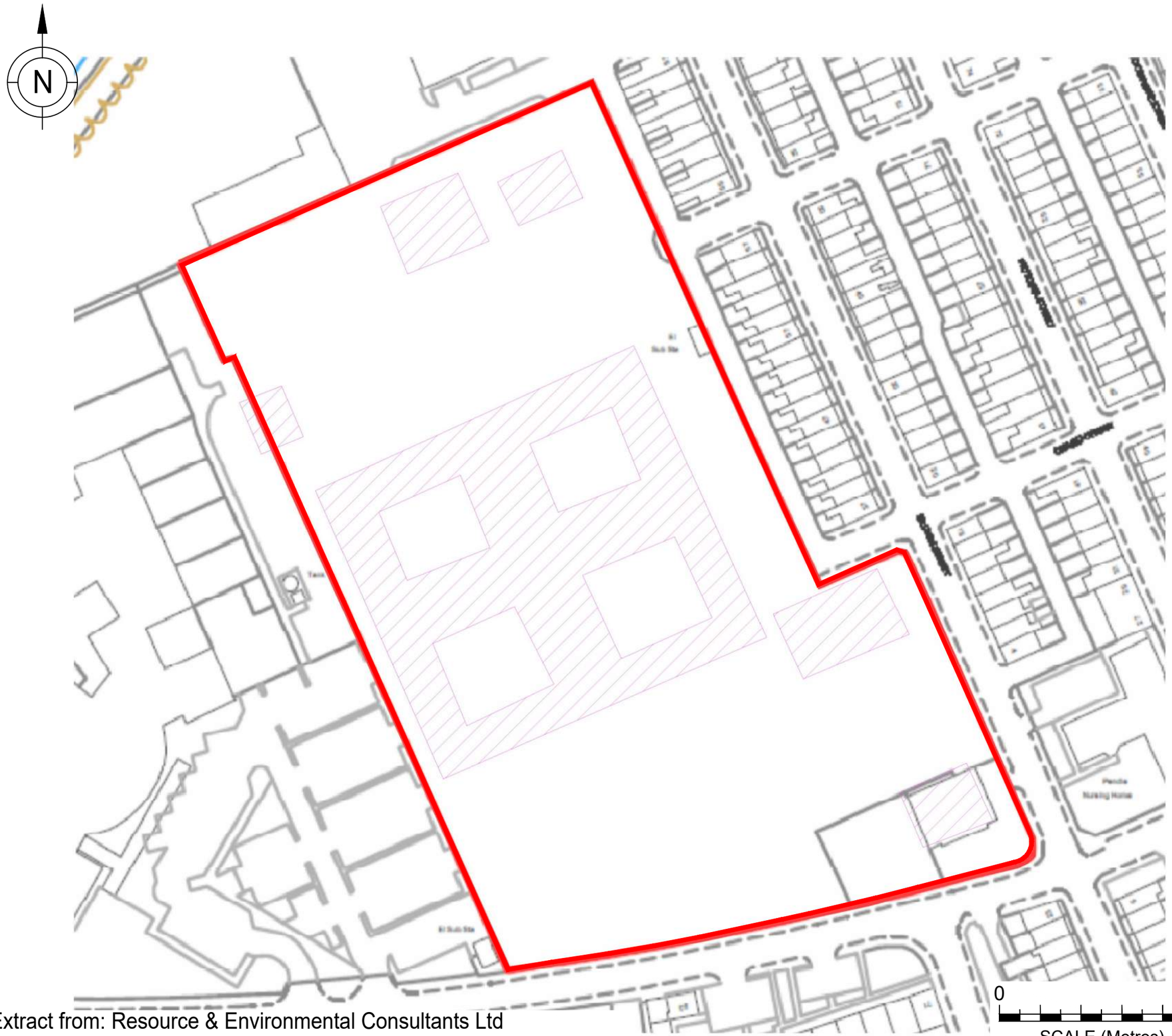


Figure 1: Site Location Plan, Former Riverside School, Bury

Drawn: January 2021 Scale: 1:25,000 @ A4 (see scale bar)

LK CONSULT LIMITED



Extract from: Resource & Environmental Consultants Ltd
Drawing Ref: Historical Features Plan, No.004, Rev:R1 (13/04/2015)

KEY

- Site Boundary
- Former School

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

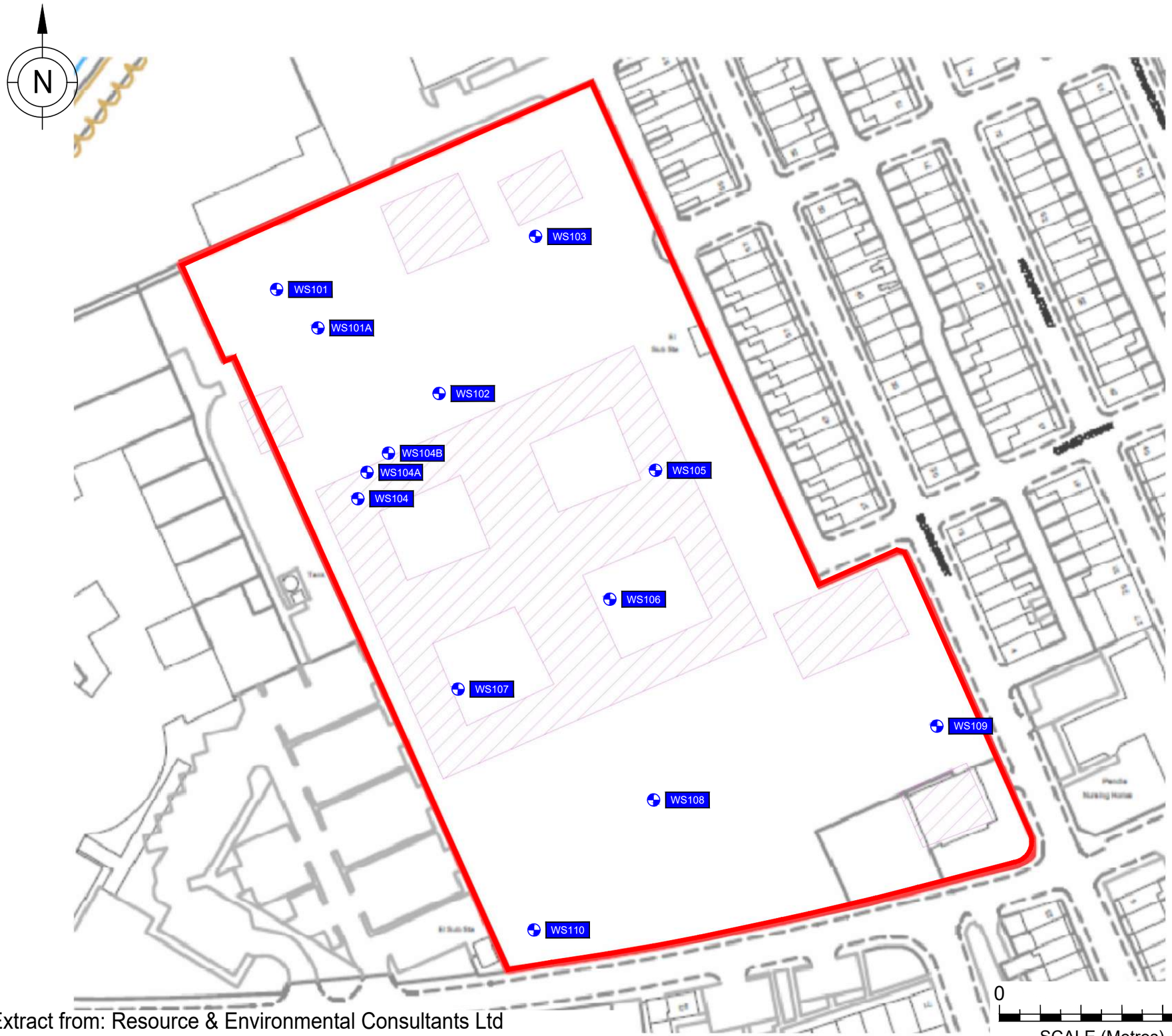
Client: The Metropolitan Borough of Bury

Site: Former Riverside School, Bury

Title: Site Boundary Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1836	1:1000 @ A3	2	

Drawn By:	Checked By:	Drawn:
AC	BS	Jan 2021



Extract from: Resource & Environmental Consultants Ltd
Drawing Ref: Historical Features Plan, No.004, Rev:R1 (13/04/2015)

KEY

- Site Boundary
- Former School
- Window Sample Borehole (WS)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: The Metropolitan Borough of Bury

Site: Former Riverside School, Bury

Title: Site Investigation Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1836	1:1000 @ A3	3	

Drawn By:	Checked By:	Drawn:
AC	BS	Jan 2021

Appendix A

Profile Logs

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS101**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 0.80mbgl.		95.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 377969 E 407239 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				94.90	(0.10) 0.10	MADE GROUND: Tarmacadam.		
					(0.40)	MADE GROUND: Light brown gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.		
				94.50	0.50			
					(0.30)	MADE GROUND: Dark brown sandy SILT with frequent brick fragments, ash. Sand is fine to coarse.		
			Water strike(1) at 0.80m.	94.20	0.80	Complete at 0.80m		▽1

Remarks
Repositioned due to water influx and metal obstruction.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS101A**
Excavation Method Drive-in Windowless Sampler to 4.00mbgl.	**Dimensions**	**Ground Level (mOD)** 95.00	**Client** The Metropolitan Borough of Bury	**Job Number** LKC 20 1836
	Location (Handheld GPS) 377981 E 407230 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(1.20)	MADE GROUND: Dark brown sandy SILT with frequent roots and rootlets, brick fragmentss, pottery fragments, and glass fragments. Sand is fine to coarse.			
1.20-1.65 1.20-1.65	SPT N=6 X1		1,1/1,1,2,2	93.80	1.20 (0.30)	Soft consistency very low strength grey and yellow mottled sandy CLAY. Sand is fine to medium.			
				93.50	1.50	Loose light brown and grey mottled silty SAND. Sand is fine to coarse.			
2.00-2.45 2.00-2.45	SPT N=8 X2		1,2/2,2,2,2		(1.30)				
				92.20	2.80	Medium dense to very dense light brown SAND. Sand is fine to coarse.			
3.00-3.45 3.00-3.45	SPT N=18 X3		3,4/4,4,5,5		(1.20)				
3.80-4.00 3.80-4.00	SPT 25*/60 50/140 X4		25/31,19 Water strike(1) at 4.00m.	91.00	4.00	Complete at 4.00m		▽1	

Remarks
Borehole unstable.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.
Water strike at 4.00mbgl.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS102**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 5.35mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378038 E 407253 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.60)	MADE GROUND: Dark brown sandy SILT with frequent roots and rootlets, occasional plastic fragments, glass fragments, brick fragments. Sand is fine to coarse.			
				82.40	0.60				
					(0.40)	Stiff consistency light brown and clay mottled sandy CLAY. Sand is fine to coarse.			
				82.00	1.00				
1.20-1.65 1.20-1.65	SPT N=10 X1		2,2/3,2,3,2			Loose to medium dense to dense light brown very silty SAND. Sand is fine to coarse.			
2.00-2.45 2.00-2.45	X2 SPT N=6		Water strike(1) at 2.00m. 2,1/1,2,1,2					▽1	
3.00-3.45 3.00-3.45	SPT N=7 X3		1,1/1,2,2,2		(4.35)				
4.00-4.45 4.00-4.45	SPT N=16 X4		3,3/3,4,4,5						
4.45-4.90	SPT N=25		4,5/5,6,7,7						
4.90-5.35 5.00-5.45	SPT N=32 X5		8,8/8,8,8,8						
				77.65	5.35	Complete at 5.35m			

Remarks
Borehole unstable.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.
Water strike at 2.00mbgl.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS102

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS103**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 4.76mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378012 E 407221 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.50)	MADE GROUND: Dark brown silty SAND with frequent roots and rootlets, brick fragments, glass fragments, rare coal. Sand is fine to coarse.			
				82.50	0.50	MADE GROUND: Light brown and grey sandy CLAY. Sand is fine to coarse. Possibly reworked natural. Increase in sand content from 0.70mbgl.			
					(0.50)				
				82.00	1.00	Loose to very dense light brown and grey very silty SAND. Sand is fine to coarse.			
1.20-1.65 1.20-1.65	SPT N=8 X1		2,2/2,2,2,2						
			Water strike(1) at 1.80m.					▽1	
2.00-2.45 2.00-2.45	SPT N=6 X2		1,1/1,2,1,2						
					(3.76)				
3.00-3.45 3.00-3.45	SPT N=7 X3		2,2/1,2,2,2						
4.00-4.45 4.00-4.45	SPT N=15 X4		3,4/3,4,3,5						
4.45-4.76 4.45-4.76	SPT 50/160 X5		9,9/22,24,4						
				78.24	4.76	Complete at 4.76m			

Remarks
Borehole unstable.
Groundwater strike at 1.80mbgl.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS103

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS104**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 1.00mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 3779999 E 407194 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.00)	MADE GROUND: Bricks.		
				82.00 82.00	1.00 1.00	MADE GROUND: Dark brown silty sandy GRAVEL with frequent brick fragments and whole bricks, glass fragments, metal fragments, plastic fragments, concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, angular of sandstone.		
						Complete at 1.00m		

Remarks
Repositioned to WS104A.
Refusal at 1.00mbgl on bricks - possible wall.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS104

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS104A**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 0.80mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378000 E 407196 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.80)	MADE GROUND: Concrete.		
				82.20 82.20	0.80 0.80	MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments and whole bricks, glass fragments, metal fragments, concrete fragments. Sand is fine to coarse. Gravel is fine to coarse, angular of sandstone. Complete at 0.80m		

Remarks
Repositioned to WS104B.
Refusal at 0.80mbgl on concrete boulder.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS104A

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS104B**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler tpo 4.35mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378003 E 407198 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.60)	MADE GROUND: Dark brown gravelly silty SAND with frequent bricks and brick fragments, glass fragments, coal. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
				82.40	0.60	MADE GROUND: Dark brown gravelly sandy SILT with frequent rootlets, brick fragments, ash, glass fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone and other lithologies.			
					(0.60)				
1.20-1.65 1.20-1.65	SPT N=14 X1		2,2/2,4,4,4	81.80	1.20	MADE GROUND: Brown gravelly SAND with frequent concrete fragments, pottery fragments, brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone and other lithologies.			
					(0.30)				
				81.50	1.50	Loose brown slightly gravelly silty SAND. Sand is fine to medium. Gravel is fine, subangular to subrounded of sandstone and coal.			
2.00-2.45 2.00-2.45	SPT N=7 X2		2,1/2,1,2,2			Very silty from 2.10mbgl.			
					(2.60)				
3.00-3.45 3.00-3.45	SPT N=14 X3		2,2/4,3,4,3						
3.90-4.35 3.90-4.35	SPT N=50 X4		6,7/10,11,14,15	78.90	4.10	Very stiff consistency slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is fine, angular of sandstone and other lithologies.			
					(0.25)				
				78.65	4.35	Complete at 4.35m			

Remarks
SPT refusal at 4.35mbgl on very stiff clay.
Borehole dry and unstable.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS104

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS105**
Excavation Method Drive-in Windowless Sampler to 4.175mbgl.	**Dimensions**	**Ground Level (mOD)** 83.00	**Client** The Metropolitan Borough of Bury	**Job Number** LKC 20 1836
	Location (Handheld GPS) 378067 E 407203 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.20)	MADE GROUND: Dark brown silty SAND with frequent rootlets, occasional brick fragments, glass fragments, concrete fragments, pottery fragments, tarmac fragments. Sand is fine to coarse.			
				82.80	0.20				
					(0.20)	MADE GROUND: Concrete.			
				82.60	0.40				
					(0.20)	MADE GROUND: Whole bricks.			
				82.40	0.60				
					(0.30)	MADE GROUND: Light brown and grey sandy GRAVEL with occasional brick fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
				82.10	0.90				
						Loose to medium dense light brown and grey silty SAND. Sand is fine to coarse.			
1.20-1.65	SPT N=9		3,2/3,2,2,2			No recovery between 1.20 and 1.65mbgl.			
						Very silty sand from 1.65mbgl.			
2.00-2.45 2.00-2.45	SPT N=19 X2		2,2/4,4,6,5						
					(3.10)				
3.00-3.45 3.00-3.45	SPT N=26 X3		4,4/4,6,7,9						
3.80-4.18 3.80-4.18	X4 SPT 50/225		Water strike(1) at 3.80m. 7,7/10,11,18,11					▽1	
				79.00	4.00	Very stiff consistency gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine and subangular to subrounded of coal, sandstone and other lithologies.			
					(0.18)				
				78.82	4.18				
						Complete at 4.18m			

Remarks
Borehole unstable.
Water strike at 3.80mbgl.
Refusal at 4.18mbgl on very stiff clay.

Scale (approx)	**Logged By**
1:25	NJ

Figure No.
LKC 20 1836.WS105

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS106**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 3.95mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378058 E 401762 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.40)	MADE GROUND: Dark brown slightly gravelly sandy SILT with frequent brick fragments, pottery fragments, roots and rootlets. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
				82.60	0.40				
					(0.20)	MADE GROUND: Concrete and sandstone flags.			
				82.40	0.60	Loose grey and light orangy brown silty SAND with occasional wood fragments. Sand is fine to medium.			
1.20-1.65 1.20-1.65	SPT N=11 X1		2,2/3,3,3,2		(1.50)				
2.00-2.45 2.00-2.45	SPT N=9 X2		2,2/2,3,3,1 Water strike(1) at 2.10m.	80.90	2.10	Stiff to very stiff consistency light brown sandy CLAY. Sand is fine to coarse.		▽1	
3.00-3.45 3.00-3.45	SPT N=22 X3		3,3/5,6,5,6		(1.85)	Very silty from 2.90mbgl with pockets of silt.			
3.60-3.95 3.60-3.95	SPT 25*/110 50/240 X4		14,11/15,13,15,7	79.05	3.95	Complete at 3.95m			

Remarks
Borehole unstable.
Water strike at 2.10mbgl.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.
Refusal at 3.95mbgl on very stiff clay.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS106

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS107**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 4.45mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378014 E 407157 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				82.90	(0.10) 0.10	MADE GROUND: Dark brown silty SAND with frequent roots and rootlets, occasional brick fragments. Sand is fine to coarse.			
					(1.30)	MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments, concrete fragments, coal, ash, tarmacadam fragments, glass fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
1.20-1.65 1.20-1.65	SPT N=3 X1		1,0/1,0,1,1	81.60	1.40	Very loose grey very silty SAND. Sand is fine to coarse.			
					(0.70)				
2.00-2.45 2.00-2.45	SPT N=10 X2		2,2/3,3,2,2	80.90	2.10				
				80.70	(0.20) 2.30	Soft consistency grey sandy CLAY. Sand is fine to coarse.			
					(0.40)	Grey gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone and other lithologies.			
			Water strike(1) at 2.70m.	80.30	2.70			▽1	
3.00-3.45 3.00-3.45	SPT N=25 X3		4,7/7,6,6,6			Stiff consistency gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded of sandstone, coal and other lithologies.			
					(1.75)	No recovery between 3.50 and 4.00mbgl.			
4.00-4.45 4.00-4.45	SPT N=50 X4		6,8/10,12,14,14			Sand pocket at 4.25mbgl.			
				78.55	4.45	Complete at 4.45m			

Remarks
Borehole unstable.
Refusal at 4.45mbgl on very stiff clay.
Water strike at 2.70mbl.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS107

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS108**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 5.45mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378066 E 407122 N	**Dates** 16/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				82.90	(0.10) 0.10	MADE GROUND: Tarmacadam.			
				82.60	(0.30) 0.40	MADE GROUND: Concrete with rebar and whole bricks.			
				82.50	(0.10) 0.50	MADE GROUND: Dark brown gravelly SAND with frequent brick fragments, ash, coal. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
				82.30	(0.20) 0.70	MADE GROUND: Dark brown gravelly silty SAND with frequent brick fragments, concrete fragments, tarmacadam fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
1.20-1.65 1.20-1.65	SPT N=0 X1		1,2/0,0,0,0		(0.80)				
				81.50	1.50	MADE GROUND: Light brown SAND with occasional pottery fragments, brick fragment, ash. Sand is fine to coarse.			
1.65-2.00	PP =<1.00KPa.					Soft consistency low strength light brown sandy CLAY. Sand is fine to medium.			
2.00-2.45 2.00-2.45	SPT N=6 X2		2,2/1,2,1,2						
2.50-3.00	PP =4.90KPa.					Firm consistency from 2.50mbgl.			
3.00-3.45 3.00-3.45	SPT N=12 X3		3,2/2,3,3,4						
3.50-4.00	PP =183.94KPa.				(3.95)	Very high strength stiff consistency from 3.50mbgl.			
4.00-4.45 4.00-4.45	SPT N=19 X4		3,4/4,4,5,6						
5.00-5.45 5.00-5.45	SPT N=26 X5		5,5/5,6,7,8						
				77.55	5.45	Complete at 5.45m			

Remarks

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS108

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS109**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 5.45mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378133 E 407136 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.40)	MADE GROUND: Dark brown gravelly silty SAND with frequent roots and rootlets, occasional brick fragments, coal, and glass fragments. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
				82.60	0.40				
					(1.00)	MADE GROUND: Light brown silty SAND with rare coal and brick fragments. Sand is fine to coarse.			
1.20-1.65 1.20-1.65	SPT N=5 X1		1,1/1,1,2,1	81.60	1.40				
1.50-2.00	PP =12.5KPa.				(0.70)	Very low strength soft consistency grey and light brown mottled slightly sandy CLAY. Sand is fine to medium.			
2.00-2.45 2.00-2.45	SPT N=10 X2		2,2/3,3,2,2	80.90	2.10				
3.00-3.45 3.00-3.45	SPT N=7 X3		2,2/3,2,1,1			Loose to dense light grey very silty SAND. Sand is fine to coarse.			
					(3.35)				
4.00-4.45 4.00-4.45	SPT N=18 X4		2,3/3,4,5,6						
5.00-5.45 5.00-5.45	SPT N=34 X5		4,5/7,7,9,11						
				77.55	5.45	Complete at 5.45m			

Remarks
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm
Borehole unstable.
Water strike at 2.10mbgl.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS109

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** Former Riverside School, Radcliffe	**Number** **WS110**

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Windowless Sampler to 5.45mbgl.		83.00	The Metropolitan Borough of Bury	LKC 20 1836
	Location (Handheld GPS) 378042 E 407091 N	**Dates** 17/12/2020	**Engineer** LKC	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				82.90	(0.10) 0.10	MADE GROUND: Tarmacadam.			
				82.70	(0.20) 0.30	MADE GROUND: Concrete.			
				82.40	(0.30) 0.60	MADE GROUND: Red and black GRAVEL comprising brick fragments, tarmac fragments, concrete fragments. Gravel is fine to coarse, angular of sandstone.			
1.20-1.65	SPT N=5		0,1/0,1,2,2	81.80	(0.60) 1.20	MADE GROUND: Dark brown silty sandy GRAVEL with frequent rootlets, occasional brick fragments and coal. Sand is fine to coarse. Gravel is fine to medium, angular of sandstone.			
1.65-2.00	PP =22.75KPa.			81.50	(0.30) 1.50	Soft consistency dark brown sandy CLAY with rare rootlets. Sand is fine to medium.			
2.00-2.45 2.00-2.45	SPT N=11 X2		3,2/3,2,3,3			Soft to firm consistency low to medium strength light brown slightly sandy CLAY. Sand is fine to medium.			
2.50-2.80	PP =45.4kPa.				(1.30)				
3.00-3.45 3.00-3.45	SPT N=20 X3		2,3/4,5,5,6	80.20	2.80	Medium dense to very dense grey silty SAND. Sand is fine to coarse.			
4.00-4.45 4.00-4.45	SPT N=33 X4		4,12/7,8,9,9		(2.65)				
5.00-5.45 5.00-5.45	SPT N=50 X5		12,11/11,12,13,14	77.55	5.45	Complete at 5.45m			

Remarks
Borehole dry and unstable.
Location from QGIS software, accurate to 10.00m.
Elevation estimated from https://www.freemaptools.com/elevation-finder.htm.

Scale (approx)	**Logged By**
1:40	NJ

Figure No.
LKC 20 1836.WS110

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Appendix B

GGS Gas Monitoring Data

GGS Ltd.
Unit 10, Bamford Business Park,
Hibbert Street, Stockport, SK4 1PL
Telephone: 0161 232 7465
Email: info@ggs-uk.com
Web: www.ggs-uk.com

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GGS2463 Former Riverside School, School Street, Radcliffe



GGS Site Photograph

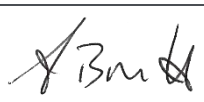
Prepared for:

LK Group

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

Document Control Page

Client	LK Group Unit 29, Eton Business Park, Eton Hill Road, Radcliffe, Manchester M26 2ZS.
Project Title	GGS DataPack® GGS2463 Former Riverside School, School Street, Radcliffe
Report Ref	GGS2463DP01
Project Revision	-
Revision Detail	First Issue
Issue Status	FINAL

	Name		Position	Signature	Date
Prepared By:	Stacey McKenna	BSc (Hons) FGS	Geo-Environmental Consultant		25/01/2021
Checked and Approved By:	Andrew Brunton	BSc (Hons) FGS	Principal Geo-Environmental Consultant		25/01/2021

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

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GGS DataPack®
GGS2463 Former Riverside School, School Street, Radcliffe

FOREWORD

This report has been prepared based on information made available to Ground-Gas Solutions, trading as GGS, at the time of the reporting using all reasonable skill, care and diligence and within the limitations of the scope of works agreed with, and resources provided by, the client.

GGS has relied on information provided by others and has prepared this report on the basis of this information being accurate.

The report and recommendations therein are provided based on information available to GGS at the time of preparing the report and completed to recognised UK guidance and legislation. GSS will not accept any liability for inaccurate or incomplete information provided to GGS or any liability arising from the future change of any such guidance or legislation.

GGS is not obliged and disclaims any obligation to carry out further works or update the report for events occurring after such works have been carried out, and / or report issued in final form. This also applies to transfer of the report to other parties.

This report must be issued as final and be signed by the author and approved by a company director or senior management before the report may be relied upon by the client and subject to full payment for our services being made.

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For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

Experts in Continuous Monitoring

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GGS2463 Former Riverside School, School Street, Radcliffe

Appendices

Appendix A

Site & Monitoring Location Plan

Appendix B

Site Photographs

Appendix C

Periodic Monitoring Records

Appendix D

Continuous Monitoring Data

Appendix E

Concentration Duration Graphs

Appendix F

Calibration Certificates

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1 Introduction

GGS Limited has been commissioned by LK Group, to undertake continuous ground gas monitoring services at School Street, Radcliffe and prepare a factual report (GGS DataPack®) containing the following information:

- Periodic monitoring records;
- Continuous monitoring data and graphs;
- Atmospheric pressure trend analysis;
- Concentration duration analysis; and
- Instrument calibration certificates.

1.1 Scope of works

The scope of works is set out below:

- A site visit was undertaken by GGS on 21st December 2020 to conduct periodic monitoring of 10 No. monitoring wells and deploy 10 No. continuous monitoring instruments, for the detection of standard ground gases (methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide) and flow;
- A site visit was undertaken by GGS on 12th January 2021, to collect all continuous monitoring instrumentation;
- Provision of a GGS DataPack® report.

1.2 Site context

Table 1.1 below details the site description. A site location plan is included in Appendix A.

Table 1.1 Site description

Description	Details
Address	Former Riverside School, School Street, Radcliffe, Manchester
Nearest Postcode	M26 3BW
National Grid Reference (approximate centre of site)	SD 78069 07113
Site area (approximate total)	1.95 hectares
Overview	Site comprises of a flat parcel of disused land. Consists of areas of hardstanding tarmac and grassed areas with trees.
North of the site	Beesley & Fildes Ltd. building merchants and Manchester, Bolton & Bury Canal towpath
South of the site	Residential properties
East of the site	Residential properties
West of the site	Millwood School and Manchester, Bolton & Bury Canal towpath .



Figure 1 GGS photographs of the site

Figure 1 above shows a selection of site photographs; additional photographs are included within Appendix B.

1.3 Continuous monitoring

1.3.1 Definition

When the frequency of sampling matches, or is greater than, the frequency of a parameter change, the data collected can be termed ‘continuous’. A continuous data set will therefore capture the full range of variation in the parameter being recorded.

1.3.2 Benefits of continuous data

The collection of time series data of permanent gases and other environmental parameters provides a wealth of information significantly assisting the assessor to identify the dominant processes of gas generation and migration. This leads to a more detailed understanding of the ground-gas regime and allows for an accurate and truly site-specific risk assessment to be completed.

2 Methodology

2.1 Periodic monitoring

An experienced geo-environmental specialist undertook periodic monitoring of 10 No. monitoring wells on 21st December 2020, prior to deployment of continuous monitoring instruments.

GGS periodic monitoring included measurement of atmospheric pressure (mbar), borehole flow (l/hr) and gas concentrations; methane (%v/v), carbon dioxide (%v/v), oxygen (%v/v), carbon monoxide (ppmv) and hydrogen sulphide (ppmv). A handheld GFM435 gas analyser was used to record these parameters. Water levels and base depths were recorded using a geotechnical groundwater dip meter.

In all cases, gas readings were recorded for up to ten minutes, or until steady state was achieved. All monitoring data and pertinent site observations were recorded on a proforma record sheet. A summary of periodic monitoring results is presented in section 3.1, whilst the full periodic monitoring records are presented in Appendix C.

2.2 Continuous ground gas and flow monitoring

GGS configured high resolution GasSentinel® and GasClam® instrumentation to record at 60-minute intervals for the contracted period of monitoring. The instrumentation recorded atmospheric pressure, temperature, and bulk gas concentrations (methane [CH_4], carbon dioxide [CO_2] and oxygen [O_2]). Continuous borehole flow was also recorded. Table 2.1 below details the schedule of the continuous monitoring at the site.

Table 2.1 Continuous monitoring schedule

Location ID	Instrument Serial No.	Dates Monitored
WS101A	GasSentinel® #0300044	22/12/2020 – 12/01/2021
WS102	GasSentinel® #0300050	22/12/2020 – 12/01/2021
WS103	GasSentinel® #0300035	22/12/2020 – 12/01/2021
WS104B	GasSentinel® #0300032	22/12/2020 – 12/01/2021
WS105	GasClam® #00127/03/10	22/12/2020 – 12/01/2021

WS106	GasClam® #00224/01/12	21/12/2020 – 09/01/2021
WS107A	GasSentinel® #0300051	22/12/2020 – 12/01/2021
WS108	GasClam® #00219/01/12	21/12/2020 – 12/01/2021
WS109	GasClam® #00126/03/10	21/12/2020 – 12/01/2021
WS110	GasClam® #00025/09/14	21/12/2020 – 12/01/2021

Continuous monitoring graphs are presented in Section 3.2 and the raw data is presented in Appendix D.

3 Results

3.1 Periodic monitoring results

A summary of all periodic monitoring data collected by GGS is presented in Table 3.1 below. The full periodic monitoring records are presented in Appendix C.

Table 3.1 GGS Periodic gas monitoring results and summary of selected key observations

Monitoring Location	Date	Max. Steady Positive Flow Rate (l/hr)	Max. CH_4 (% v/v)	Max. CO_2 (% v/v)	Min O_2 (% v/v)	Max. H_2S (ppmv)	Max. CO (ppmv)	Standing water level (mbgl)	Base depth (mbgl)	Key site observations
WS101A	21/12/2020	<0.1	<0.1	0.6	20.0	<1	<1	0.62	3.05	
WS102	21/12/2020	<0.1	<0.1	0.9	19.7	<1	<1	1.00	1.75	Brown silty base
WS103	22/12/2020	<0.1	<0.1	0.5	18.0	<1	<1	1.14	1.87	Monitoring carried out the following day to the rest and during a rising pressure system. Bung was replaced 45 minutes prior to sampling as it was missing upon arrival. Brown silty base.
WS104B	21/12/2020	<0.1	<0.1	4.5	16.6	<1	1	1.14	2.50	
WS105	21/12/2020	102*	<0.1	0.2	19.9	<1	1	0.77	2.90	
WS106	21/12/2020	<0.1	<0.1	3.4	18.2	<1	13	1.00	2.82	
WS107A	21/12/2020	<0.1	<0.1	0.2	20.0	<1	<1	0.83	2.49	
WS108	21/12/2020	<0.1	<0.1	<0.1	19.7	<1	<1	0.56	4.83	
WS109	21/12/2020	<0.1	<0.1	5.2	15.3	<1	3	1.61	3.73	
WS110	21/12/2020	<0.1	<0.1	0.7	18.6	<1	10	1.11	3.00	

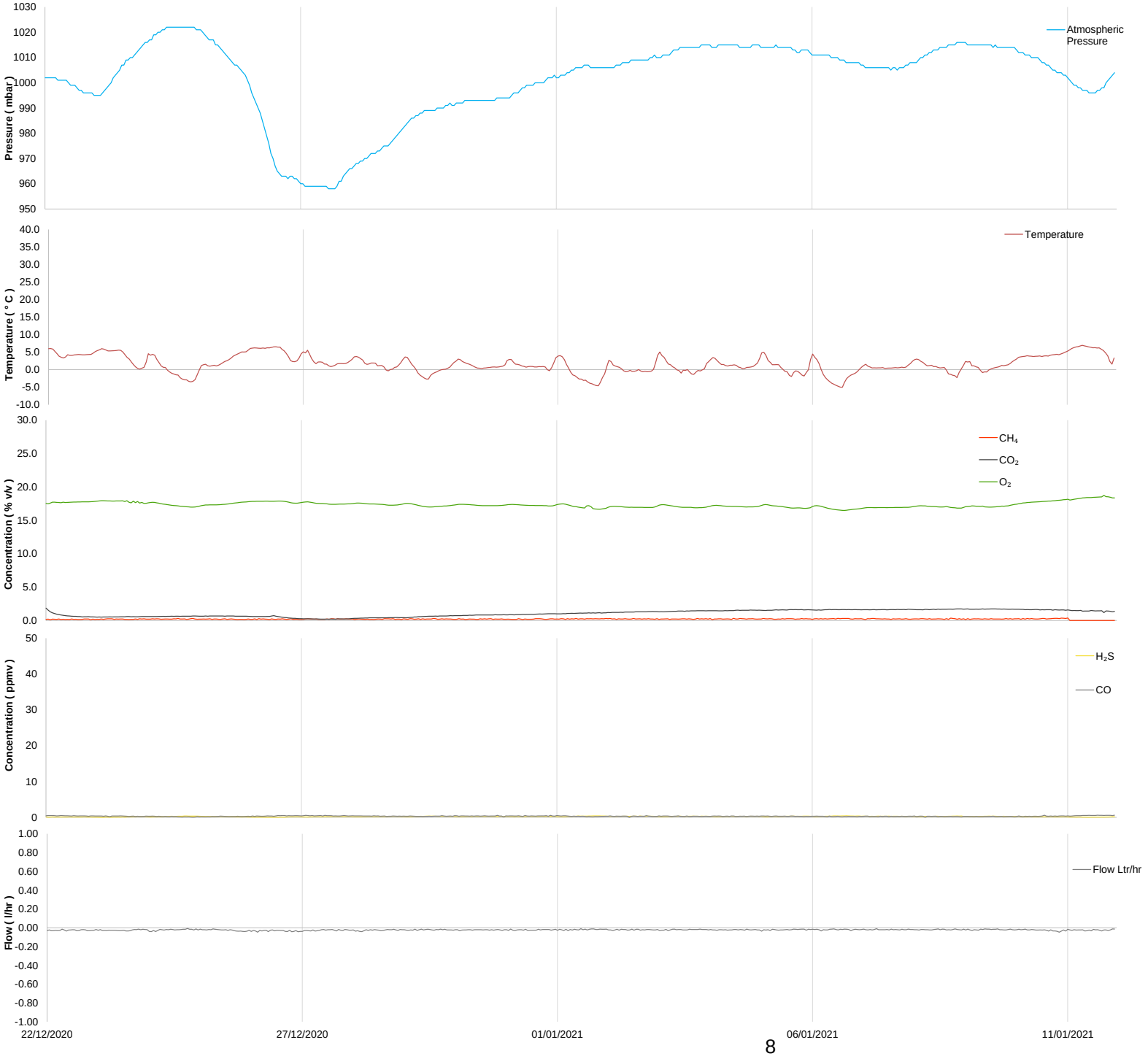
Key: 1/hr – litres per hour; %v/v – Percentage volume by volume; ppmv – parts per million by volume; mbgl – metres below ground level; Max – Maximum; Min. – Minimum; *potentially affected by high water level in monitoring well

3.2 Continuous monitoring results

GGS DataPack® analysis involves converting raw data files from instruments into spread sheets. The data is then plotted as time series data graphs, showing ground-gas concentrations, atmospheric pressure, flow and temperature against time.

The continuous monitoring graphs are shown on the following page: each graph also contains a minimum and maximum values table. The raw data is presented in Appendix D.

Please note there is no flow data for monitoring well WS109 due to water damage to the instrumentation.



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Title:

WS101A Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

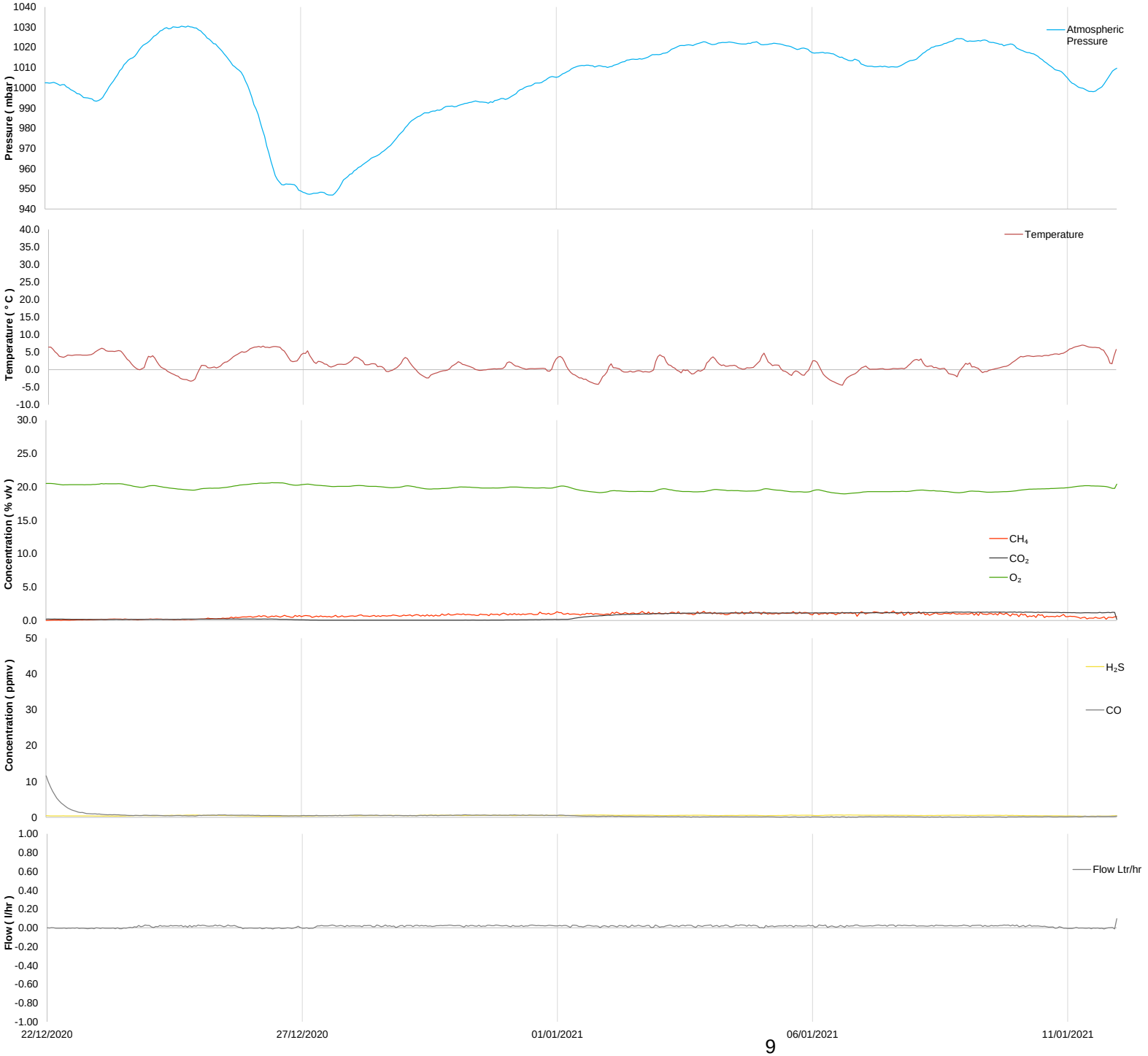
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	0.4
CO_2 (% v/v)	0.2	1.9
O_2 (% v/v)	16.5	18.8
Hydrogen Sulphide (ppmv)	0	0
Carbon Monoxide (ppmv)	0	1
Atmospheric Pressure (mbar)	958	1022
Temperature (° C)	-5.0	6.9
Flow (l/hr)	-0.05	-0.01

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Experts in Continuous Monitoring

Title:

WS102 Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

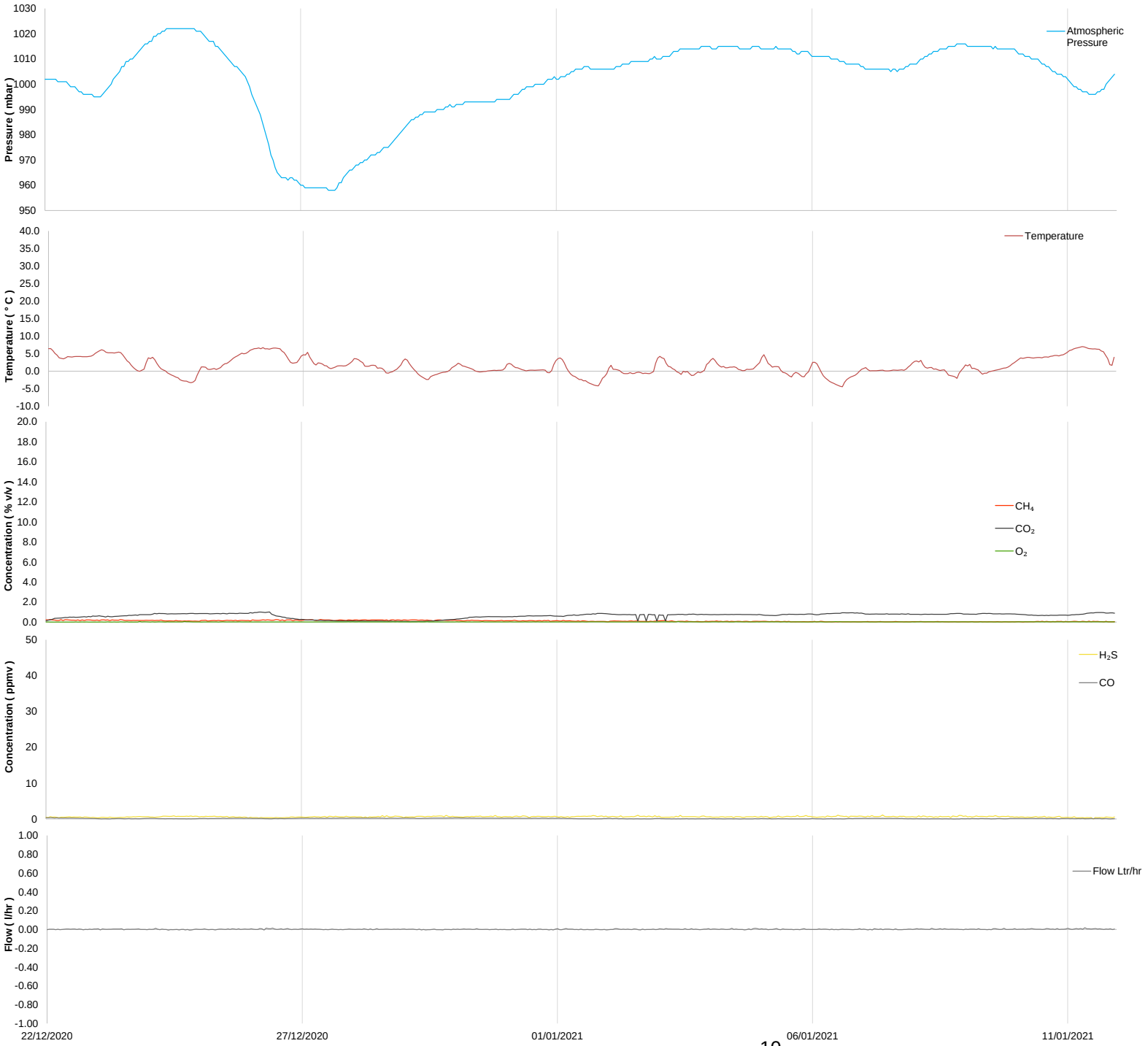
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	1.4
CO_2 (% v/v)	0.0	1.3
O_2 (% v/v)	19.0	20.7
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	12
Atmospheric Pressure (mbar)	947	1031
Temperature (° C)	-4.5	7.0
Flow (l/hr)	-0.01	0.10

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Title:

WS103 Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

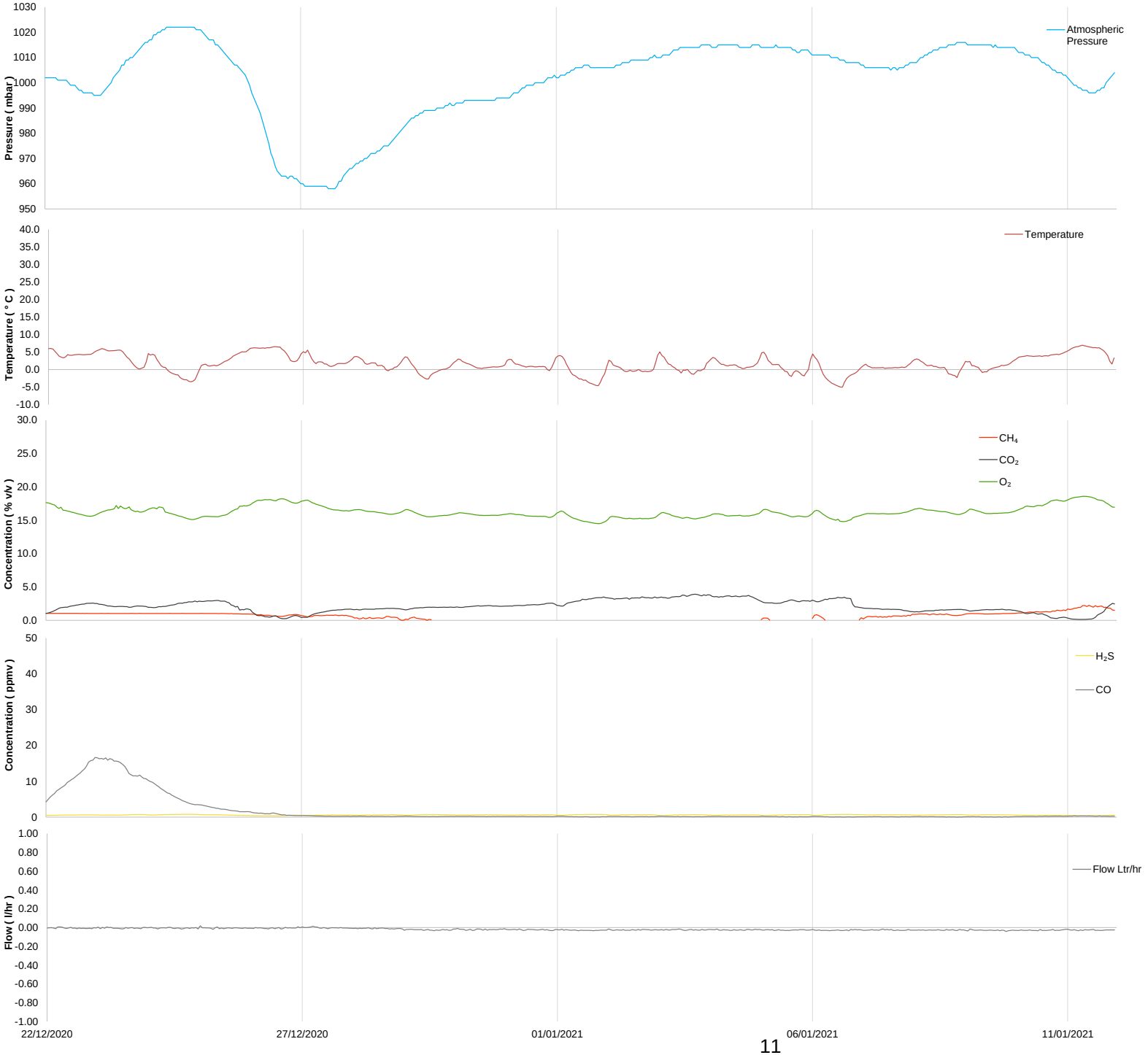
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	0.3
CO_2 (% v/v)	0.0	1.0
O_2 (% v/v)	0.0	0.1
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	0
Atmospheric Pressure (mbar)	0	1022
Temperature (° C)	-4.5	7.0
Flow (l/hr)	-0.01	0.02

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Experts in Continuous Monitoring

Title:

WS104B Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

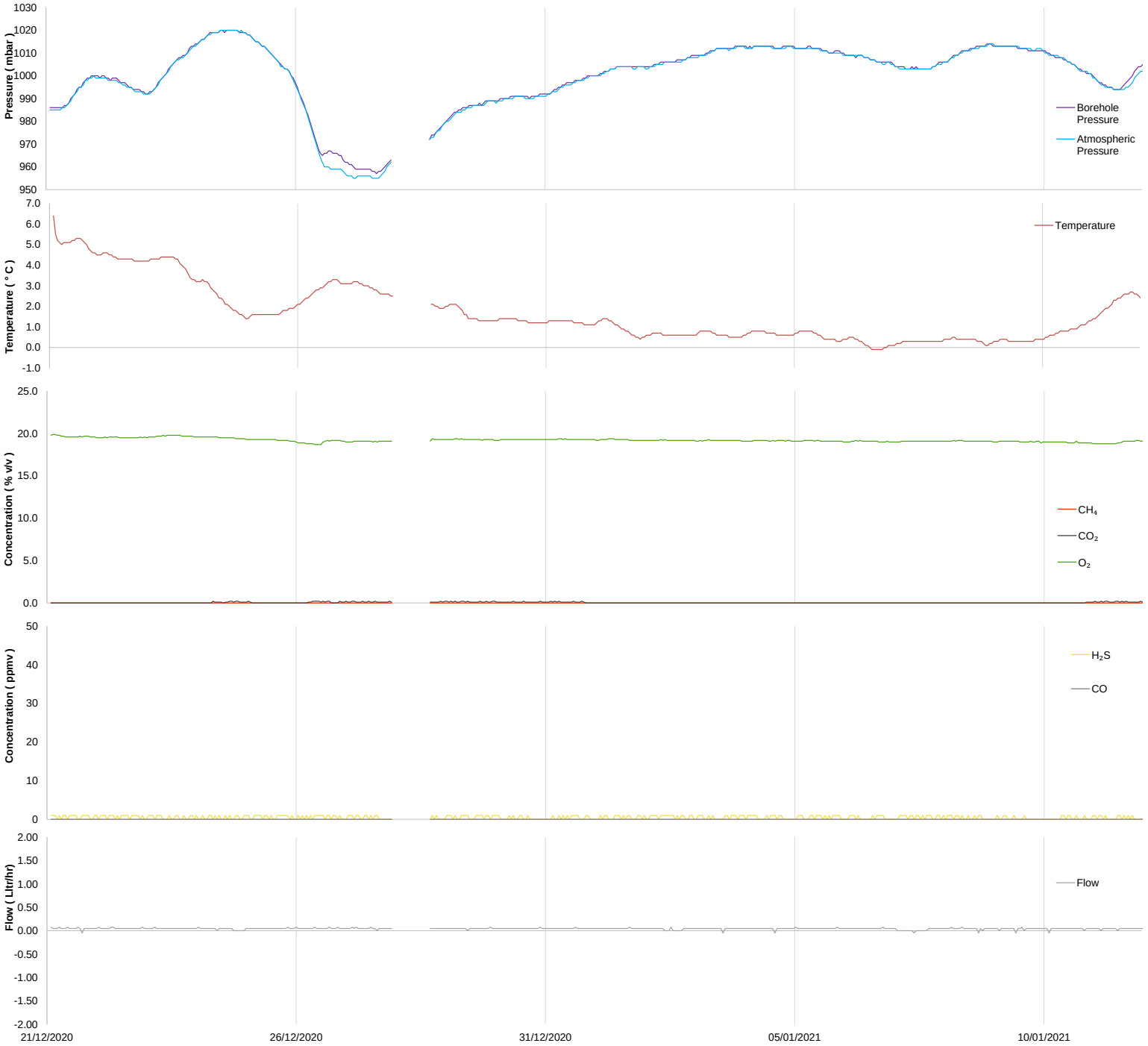
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	2.2
CO_2 (% v/v)	0.1	3.9
O_2 (% v/v)	14.5	18.6
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	17
Atmospheric Pressure (mbar)	958	1022
Temperature (° C)	-5.0	6.9
Flow (l/hr)	-0.04	0.02

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Experts in Continuous Monitoring

Title:

WS105, Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

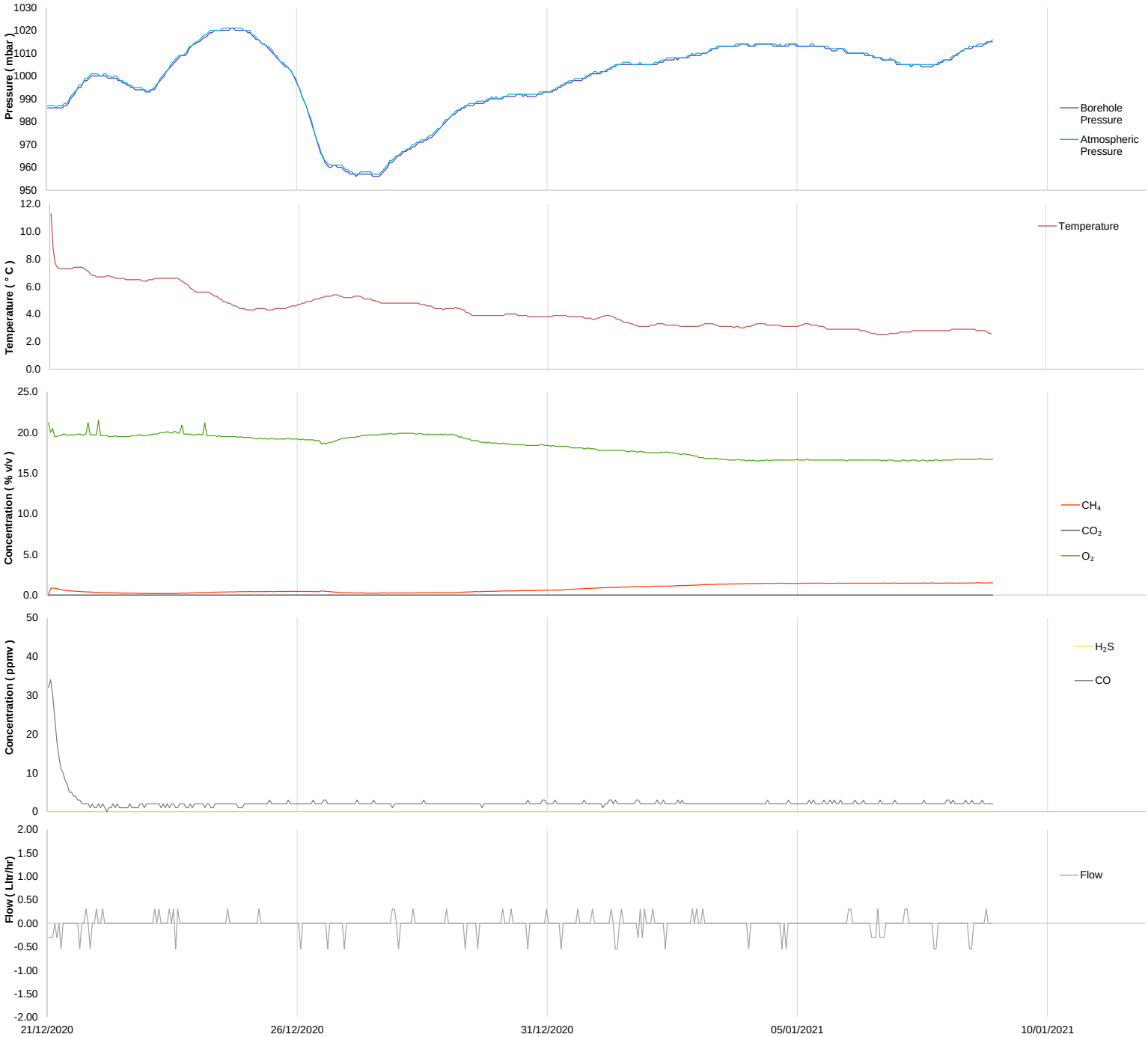
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	0.0
CO_2 (% v/v)	0.0	0.2
O_2 (% v/v)	18.7	19.9
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	0
Atmospheric Pressure (mbar)	955	1020
Borehole Pressure (mbar)	957	1020
Temperature (° C)	-0.1	6.4
Flow (ltr/hr)	-0.05	0.08

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Title:

WS106, Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

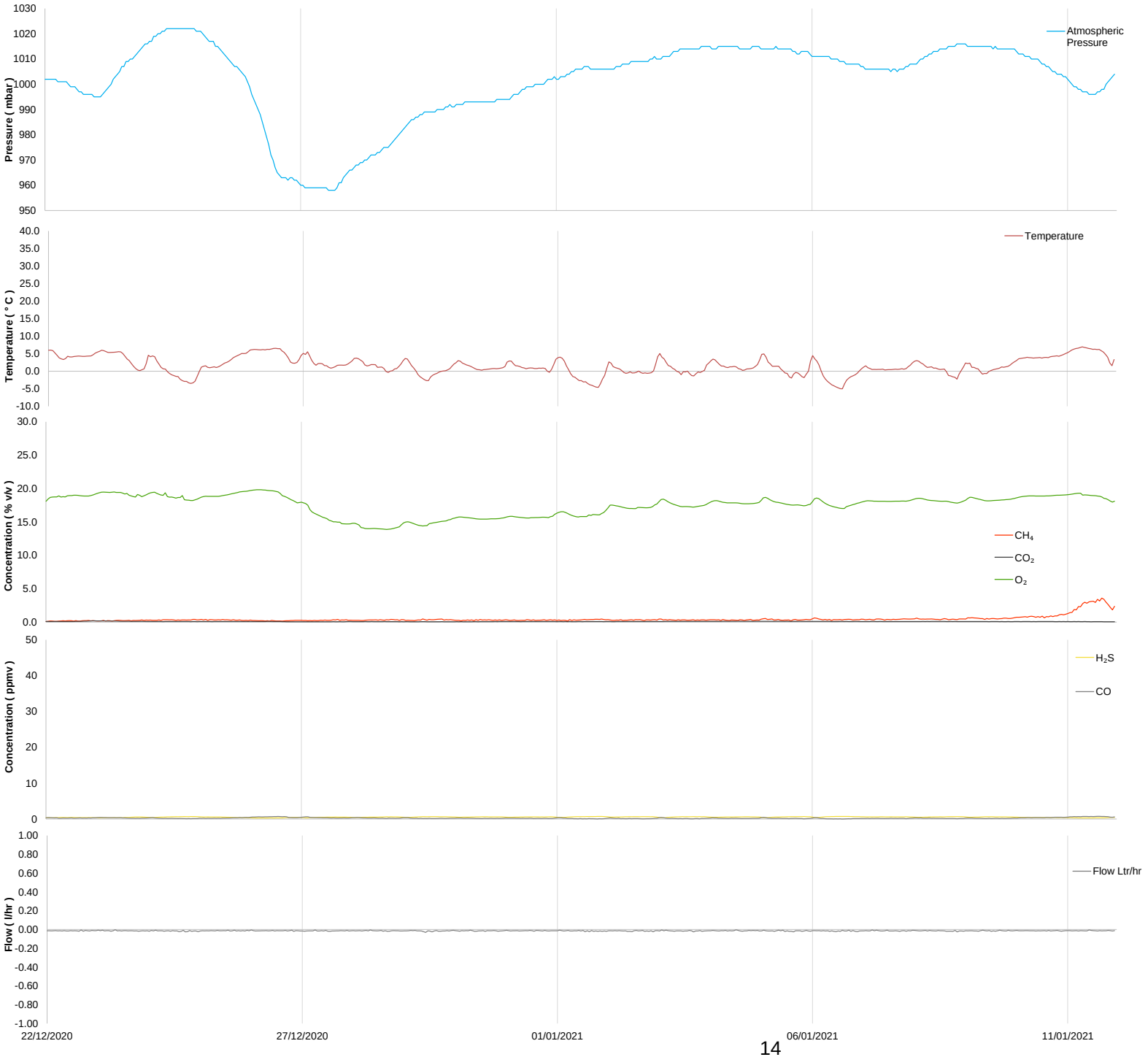
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	1.5
CO_2 (% v/v)	0.0	0.0
O_2 (% v/v)	16.5	21.5
Hydrogen Sulphide (ppmv)	0	0
Carbon Monoxide (ppmv)	0	34
Atmospheric Pressure (mbar)	957	1021
Borehole Pressure (mbar)	956	1021
Temperature (° C)	2.5	11.3
Flow (ltr/hr)	-0.54	0.30

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Experts in Continuous Monitoring

Title:

WS107A Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

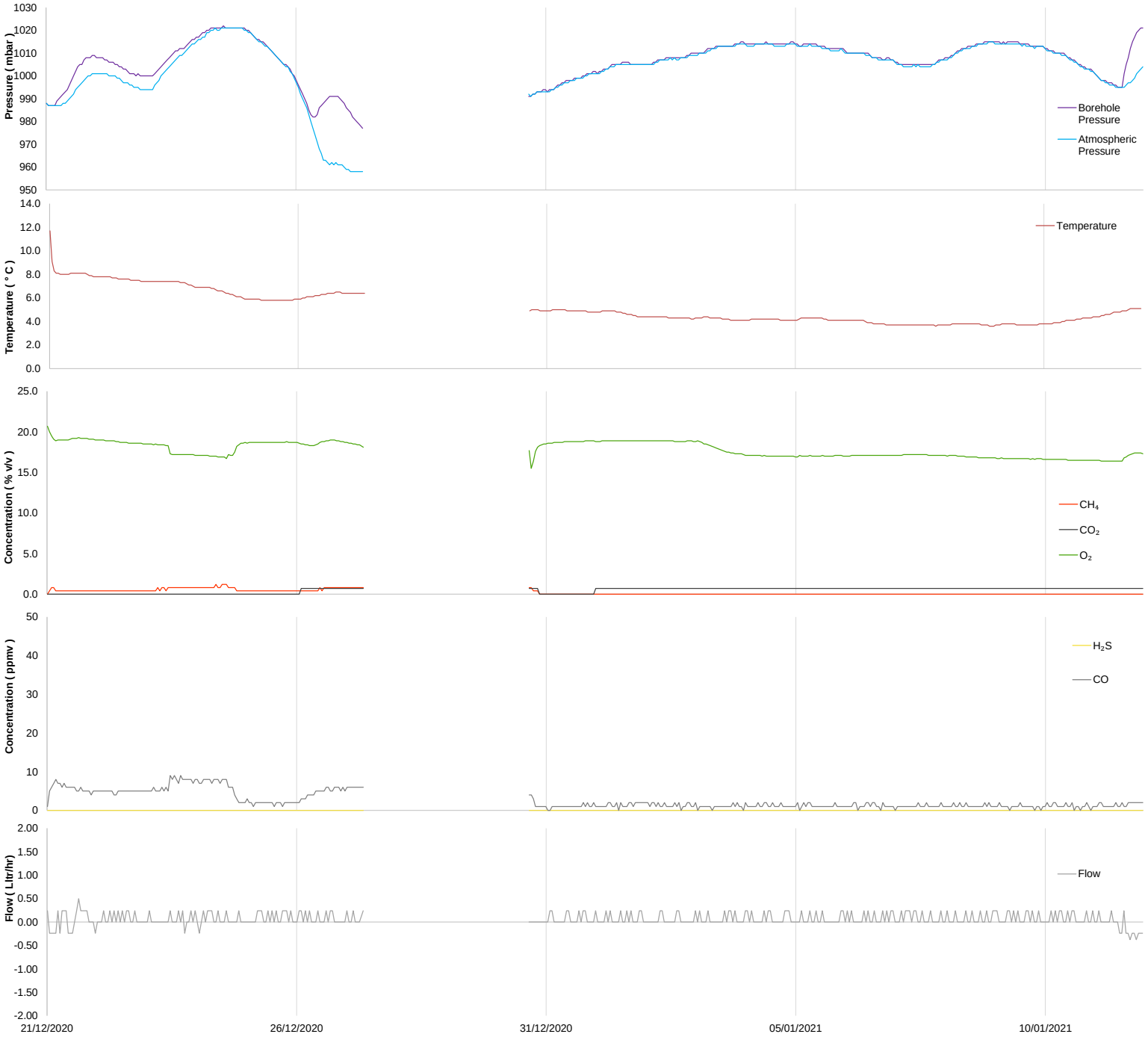
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.1	3.6
CO_2 (% v/v)	0.1	0.2
O_2 (% v/v)	13.9	19.8
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	1
Atmospheric Pressure (mbar)	958	1022
Temperature (° C)	-5.0	6.9
Flow (l/hr)	-0.03	0.00

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Title:

WS108, Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

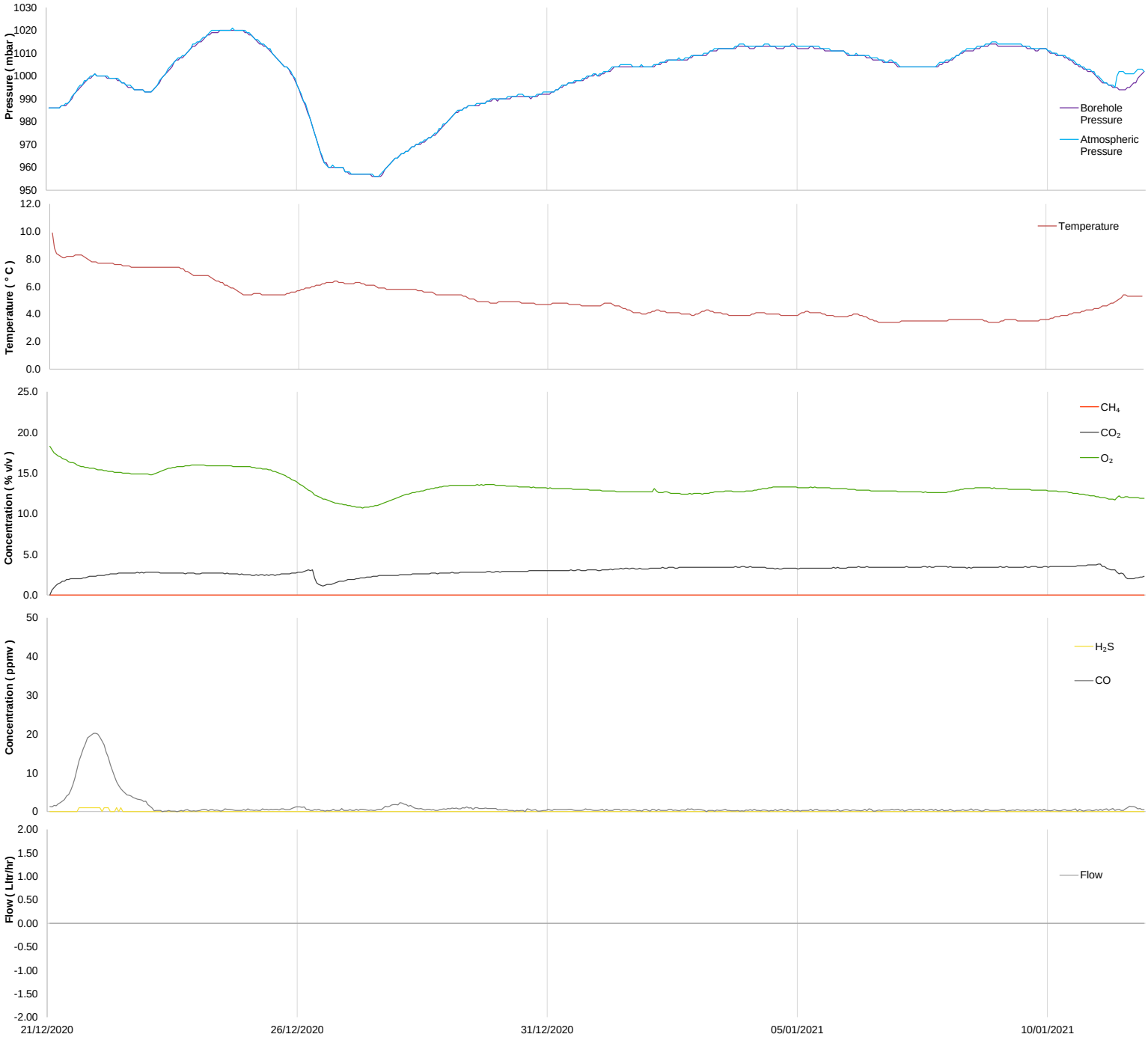
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	1.2
CO_2 (% v/v)	0.0	0.7
O_2 (% v/v)	15.5	20.7
Hydrogen Sulphide (ppmv)	0	0
Carbon Monoxide (ppmv)	0	9
Atmospheric Pressure (mbar)	958	1021
Borehole Pressure (mbar)	977	1022
Temperature (° C)	3.6	11.7
Flow (ltr/hr)	-0.38	0.50

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Experts in Continuous Monitoring

Title:

WS109, Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

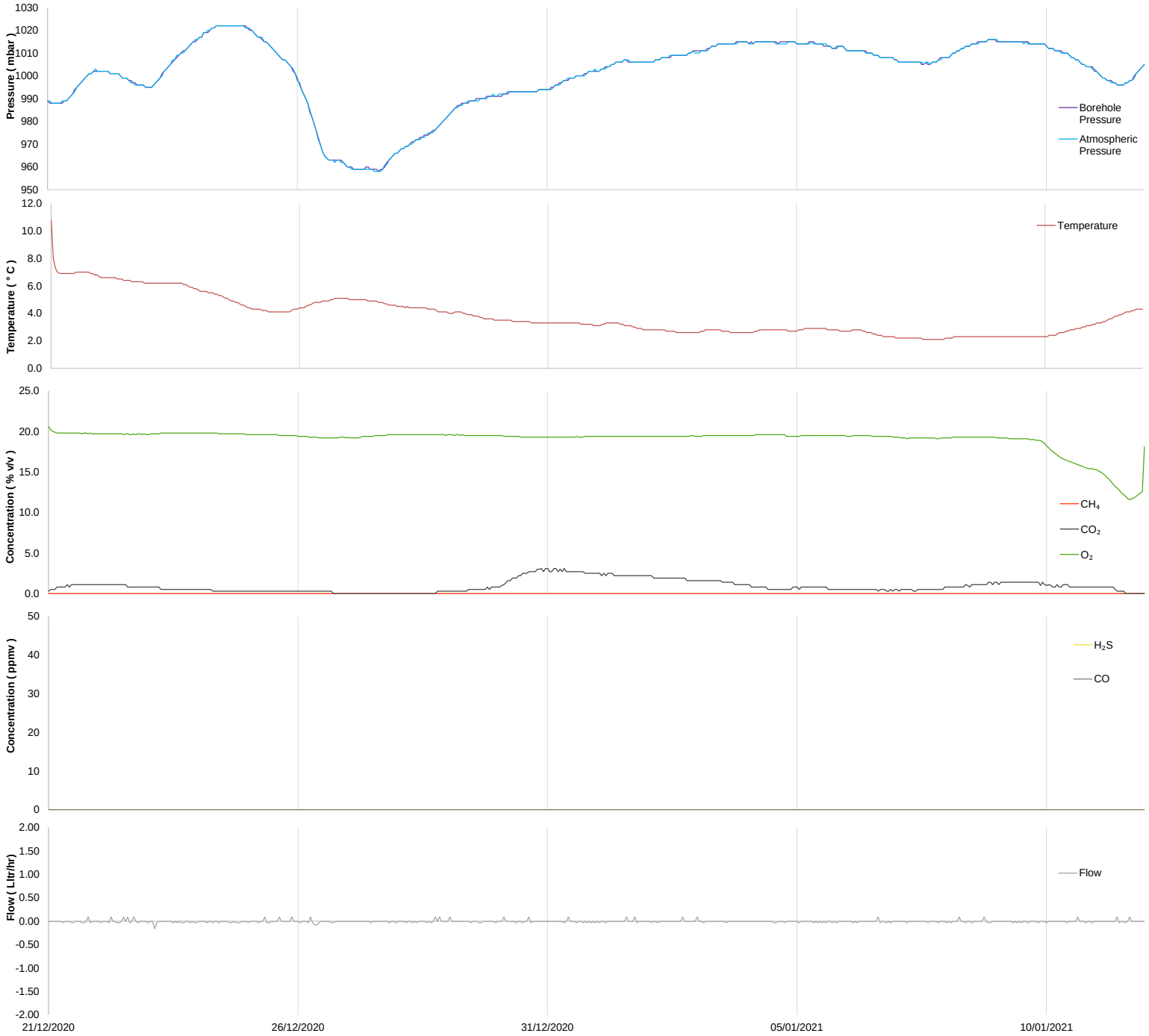
LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	0.0
CO_2 (% v/v)	0.0	3.8
O_2 (% v/v)	10.7	18.3
Hydrogen Sulphide (ppmv)	0	1
Carbon Monoxide (ppmv)	0	20
Atmospheric Pressure (mbar)	956	1021
Borehole Pressure (mbar)	956	1020
Temperature (° C)	3.4	9.9
Flow (ltr/hr)	NM	NM

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Experts in Continuous Monitoring

Title:

WS110, Time Series Graphs

Project:

GGS2463 School Street, Radcliffe

Client:

LK Group

Minimum / Maximum Table		
Parameter	**Minimum**	**Maximum**
CH_4 (% v/v)	0.0	0.0
CO_2 (% v/v)	0.0	3.1
O_2 (% v/v)	11.6	20.6
Hydrogen Sulphide (ppmv)	0	0
Carbon Monoxide (ppmv)	0	0
Atmospheric Pressure (mbar)	958	1022
Borehole Pressure (mbar)	958	1022
Temperature (° C)	2.1	10.8
Flow (ltr/hr)	-0.16	0.09

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3.3 Atmospheric pressure trend analysis

Atmospheric pressure is often a dominant ground-gas driver and as such, monitoring should include sampling during falling pressure events. To capture potential 'worst case' conditions monitoring should include both short and longer duration falling pressure events at a rate of 1.15 millibars per hour and above[1]. Table 3.2 below summarises the most significant atmospheric pressure events during the continuous monitoring period, whilst Figure 2 provides percentage distribution of the atmospheric pressure regime.

Table 3.2 Atmospheric pressure regimes over the continuous monitoring period

Monitoring period	22/12/2020 – 12/01/2021
Range in atmospheric pressure (mbar)	958 – 1022
Most significant atmospheric pressure falls over 8 millibar	- 58 millibar drop over 38 hours (1021 25/12/20 14:00 – 963 27/12/20 04:00)
Most significant sustained rate of fall (over 8 hours)	2.53 millibar/hr (1003 26/12/20 11:00 – 965 27/12/20 02:00)
Number of samples taken under 1000mb	168 (33.5%)
Number of samples taken below 1000mb and falling	32 (6.4%)

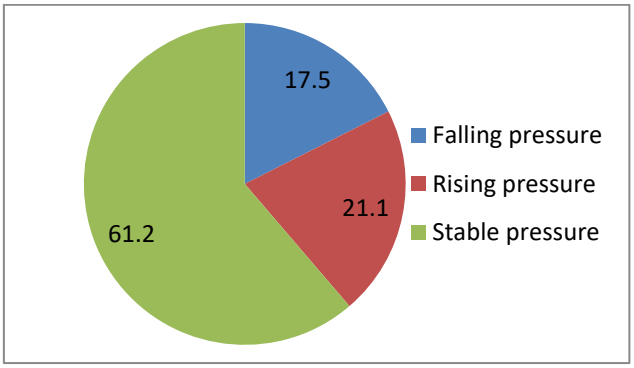


Figure 2 Percentage distribution of the atmospheric pressure regime during the continuous monitoring period *(Data used from monitoring well WS103)*

Figure 3 below demonstrates the most significant pressure falls captured during the continuous monitoring period exceeds 'worst case' conditions, as outlined in TB18.

[1] CL:AIRE Technical Bulletin TB18 Continuous Ground Gas Monitoring and the Lines of Evidence Approach to Risk Assessment. January 2019

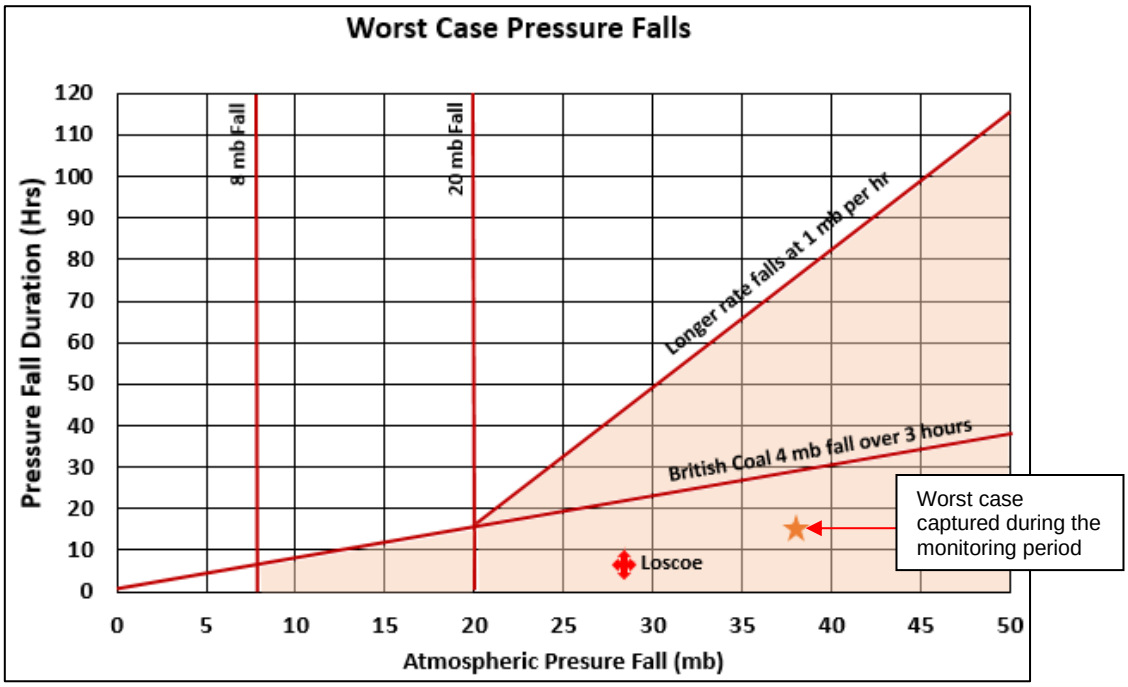


Figure 3 Worst case pressure falls taken from TB18, with the most significant pressure fall captured during the monitoring period.

3.4 Concentration duration analysis

Concentration duration analysis involves calculating the percentage of the monitoring period at which ground-gas concentrations were equalled to, or in exceedance of, a particular value. For example, high methane concentrations may be detected, but may only be present for a small percentage of the monitoring period. This is a valuable tool in risk assessment as it can be used to show the percentage time for which high risk gas concentrations are present throughout the monitoring period.

Concentration duration curves are presented in Appendix E. Table 3.3 below summarises the percentage time in which methane was at 1% v/v or above, 5% v/v or above and at 20% v/v or above. Table 3.4 below summarises the percentage time in which carbon dioxide was at 5% v/v or above, at 10% v/v or above and at 30% v/v or above.

Table 3.3 Percentage time at or above 1%, 5% and 20% v/v methane

	% of monitoring period that CH_4 equalled or exceeded:		
Location ID	1.0% v/v	5.0% v/v	20.0% v/v
WS101A	0.0	0.0	0.0
WS102	39.9	0.0	0.0
WS103	0.0	0.0	0.0
WS104B	33.0	0.0	0.0
WS105	0.0	0.0	0.0
WS106	39.5	0.0	0.0
WS107A	5.2	0.0	0.0
WS108	0.7	0.0	0.0
WS109	0.0	0.0	0.0
WS110	0.0	0.0	0.0

Table 3.4 Percentage time at or above 5%, 10% and 30% v/v carbon dioxide

	% of monitoring period that CO_2 equalled or exceeded:		
Location ID	5.0% v/v	10.0% v/v	30.0% v/v
WS101A	0.0	0.0	0.0
WS102	0.0	0.0	0.0
WS103	0.0	0.0	0.0
WS104B	0.0	0.0	0.0
WS105	0.0	0.0	0.0
WS106	0.0	0.0	0.0
WS107A	0.0	0.0	0.0
WS108	0.0	0.0	0.0
WS109	0.0	0.0	0.0
WS110	0.0	0.0	0.0

4 Instrumentation specification

All GGS instrumentation is maintained in accordance with the manufacturer recommendations and is serviced and calibrated annually. Note that for some instrumentation cross sensitivity to other gases and significant environmental changes, such as temperature, pressure and humidity, should be taken into consideration when considering all site monitoring data.

The current calibration certificates for all equipment used on site are included in Appendix F.

5 Limitations

GGS has prepared this factual report for the use of the Client and those parties whom a warranty agreement has been executed, or with whom an assignment has been agreed. The client's appointed engineers can rely on the data included in this report and acquired at the specific monitoring locations selected for the purposes of this project

GGS accepts no responsibility for the consequences of this document being used for any purpose or project other than for which it was commissioned or for the consequences arising from this document's use by any third party with whom an agreement has not been executed.

GGS accept no responsibility for the interpretation of this factual data. A reviewer of the data provided must take into account other available information and the context in which this data was collected. For example, site setting, conceptual site model, environmental conditions, gases present (that are not monitored as part of this contract, but may interfere with the sensors used), borehole construction and response zone information.

GGS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this factual report.

Appendix A

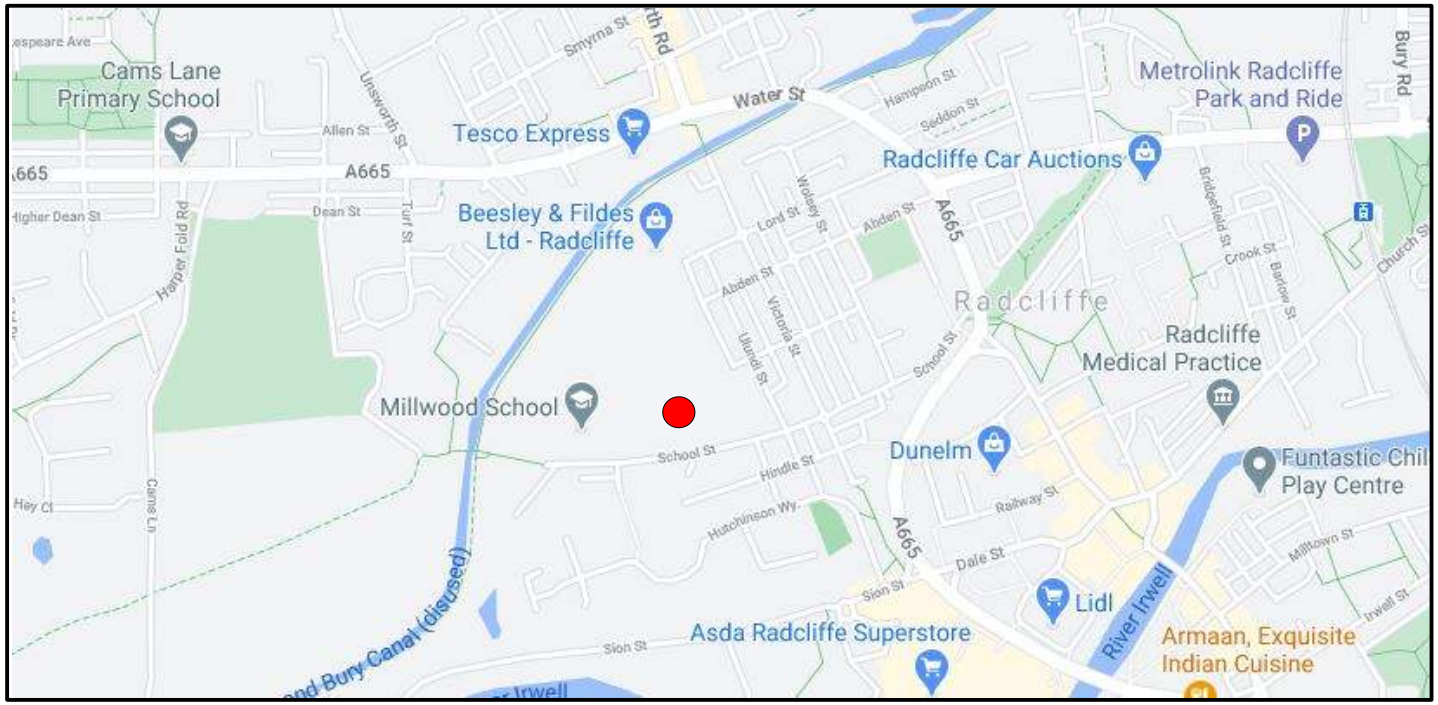
Site & Monitoring Location Plan

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

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N





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Unit 10 Pythia House, Bamford Business Park,
Hibbert Street,Stockport, SK4 1PL
www.ggs-uk.com

Title:
Site Location Plan

Project:
GGS2463 School Street, Radcliffe, Manchester

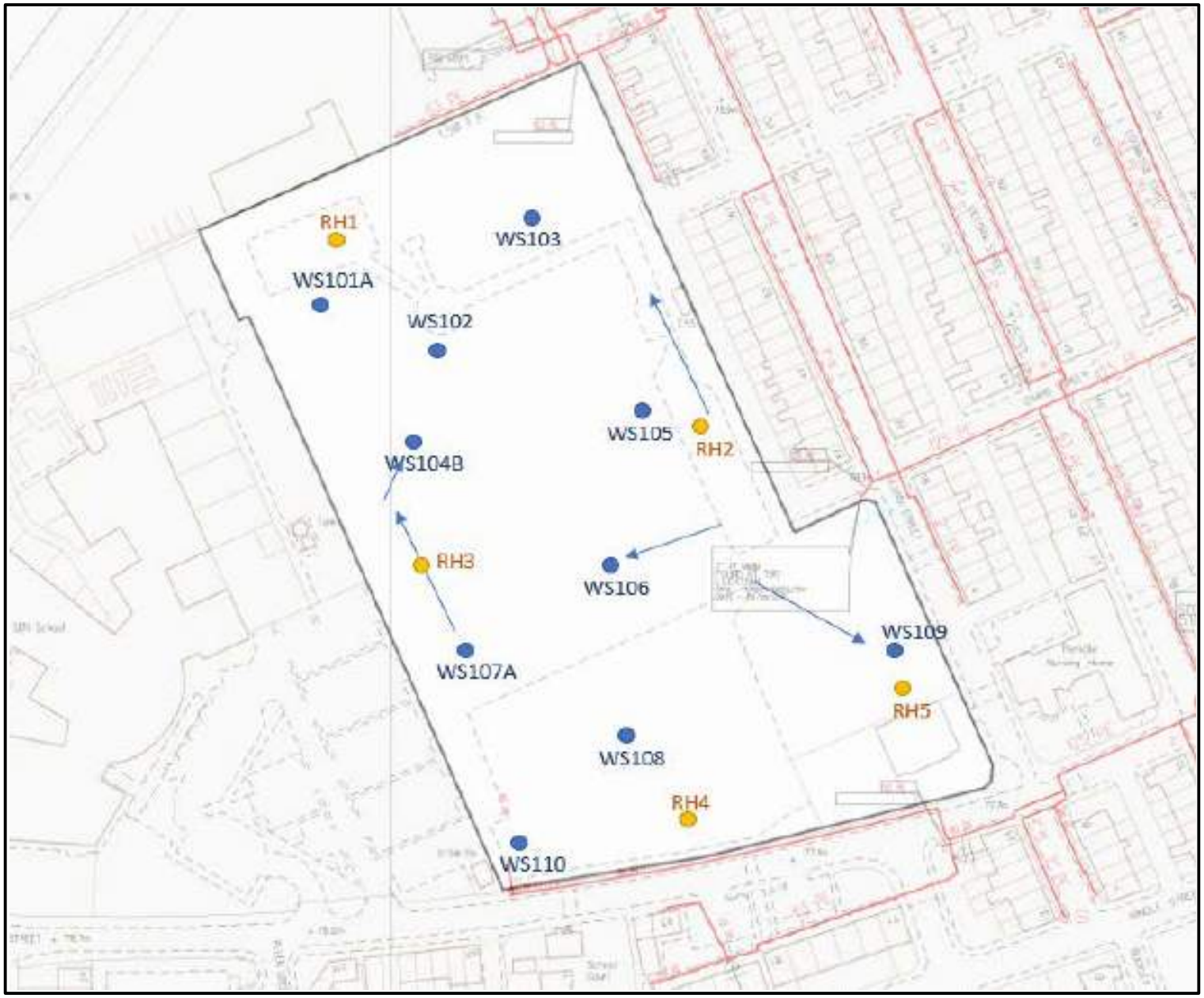
Drawing No:
GGS2463_SLP_220121

Key:	
●	Site location

Rev.	Date	Dwn.	Description	App'd
0	22/01/2021	SM		AB

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Unit 10 Pythia House, Bamford Business Park,
Hibbert Street,Stockport, SK4 1PL
www.ggs-uk.com

Title:
Monitoring Well Location Plan

Project:
GGS2463 School Street,
Radcliffe, Manchester

Drawing No:
GGS2463_MLP_220121

Key:	
●	Monitoring well locations

Rev.	Date	Dwn.	Description	App'd
0	22/01/2021	SM		AB

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Appendix B

Site Photographs

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

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GGS DataPack®

GGS2463 Former Riverside School, School Street, Radcliffe



Monitoring well: WS101A



??ask Heather what this location is



Northern side of the site



GGS specialist removing continuous monitoring equipment from WS101A



Entrance to the site



Flooded flow monitoring equipment

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

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Experts in Continuous Monitoring

Appendix C

Periodic Monitoring Records

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

Experts in Continuous Monitoring

Experts in Continuous Monitoring

IMS Ref: GMPM
Version: 2.2

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	13:34
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS101A
Groundwater Level (mbgl)	0.62
Depth to base (mbgl)	3.05

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.2	79.8	<1	<1
Initial	<0.1	<0.1	0.6	20.0	79.4	<1	<1
30	<0.1	<0.1	0.6	20.0	79.4	<1	<1
60	<0.1	<0.1	0.6	20.0	79.4	<1	<1
120	<0.1	<0.1	0.5	20.0	79.5	<1	<1
180		<0.1	0.5	20.0	79.5	<1	<1
240		<0.1	0.5	20.0	79.5	<1	<1
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.3	79.7	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	240	30	240	30	30
Steady state value	<0.1	<0.1	0.5	20.0	79.5	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	0.6	20.0	79.5	<1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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IMS Ref: GMPM
Version: 2.2

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	13:15
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS102
Groundwater Level (mbgl)	1.00
Depth to base (mbgl)	1.75

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system. Brown silty base.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1
Initial	<0.1	<0.1	0.7	20.1	79.2	<1	<1
30	<0.1	<0.1	0.9	19.7	79.4	<1	<1
60	<0.1	<0.1	0.9	19.7	79.4	<1	<1
120	<0.1	<0.1	0.9	19.7	79.4	<1	<1
180		<0.1	0.9	19.7	79.4	<1	<1
240		<0.1	0.9	19.7	79.4	<1	<1
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	240	120	120	30	30
Steady state value	<0.1	<0.1	0.9	19.7	79.4	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	0.9	19.7	79.4	<1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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Experts in Continuous Monitoring

IMS Ref: GMPM
Version: 2.2

PROJECT DETAILS			
Project ID	GGS2463	**Date**	22.12.20
Site	School Street, Radcliffe	**Time**	11:11
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	1000	1000
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS103
Groundwater Level (mbgl)	1.14
Depth to base (mbgl)	1.87

MONITORING WELL COMMENTS	
Weather: Sunny with sparse cloud cover, very still, 4 degrees celcius. Monitoring carried out the following day to the rest and during a rising pressure system. Bung was replaced 45 minutes prior to sampling as it was missing upon arrival. Brown silty base.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1
Initial	<0.1	<0.1	0.1	20.0	79.9	<1	<1
30	<0.1	<0.1	0.2	18.5	81.3	<1	<1
60	<0.1	<0.1	0.2	18.4	81.4	<1	<1
120	<0.1	<0.1	0.3	18.3	81.4	<1	<1
180		<0.1	0.3	18.3	81.4	<1	<1
240		<0.1	0.5	18.0	81.5	<1	<1
300		<0.1	0.5	18.0	81.5	<1	<1
360		<0.1	0.5	18.0	81.5	<1	<1
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.7	79.3	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	360	360	360	30	30
Steady state value	<0.1	<0.1	0.5	18.0	81.5	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	0.5	18.0	81.5	<1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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IMS Ref: GMPM
Version: 2.2

Experts in Continuous Monitoring

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	13:50
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS104B
Groundwater Level (mbgl)	1.14
Depth to base (mbgl)	2.50

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1
Initial	<0.1	<0.1	3.7	17.9	78.4	1	<1
30	<0.1	<0.1	4.4	16.8	78.8	<1	<1
60	<0.1	<0.1	4.5	16.6	78.9	<1	<1
120	<0.1	<0.1	4.5	16.6	78.9	<1	<1
180		<0.1	4.5	16.6	78.9	<1	<1
240							
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.7	79.3	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	180	180	180	30	30
Steady state value	<0.1	<0.1	4.5	16.6	78.9	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	4.5	16.6	78.9	1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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IMS Ref: GMPM
Version: 2.2

Experts in Continuous Monitoring

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	12:50
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS105
Groundwater Level (mbgl)	0.77
Depth to base (mbgl)	2.90

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1
Initial	102	<0.1	0.1	20.0	79.9	1	<1
30	3.5	<0.1	0.2	19.9	79.9	<1	<1
60	<0.1	<0.1	0.2	19.9	79.9	<1	<1
120	<0.1	<0.1	0.2	19.9	79.9	<1	<1
180	<0.1	<0.1	0.2	19.9	79.9	<1	<1
240							
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	180	180	180	30	30
Steady state value	<0.1	<0.1	0.2	19.9	79.9	<1	<1
Peak Value (O_2 Low)	102.0	<0.1	0.2	19.9	79.9	1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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IMS Ref: GMPM
Version: 2.2

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	12:34
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS106
Groundwater Level (mbgl)	1.00
Depth to base (mbgl)	2.82

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1
Initial	<0.1	<0.1	0.9	18.9	80.2	13	<1
30	<0.1	<0.1	3.3	18.3	78.4	7	<1
60	<0.1	<0.1	3.4	18.2	78.4	<1	<1
120	<0.1	<0.1	3.4	18.2	78.4	<1	<1
180		<0.1	3.0	18.2	78.8	<1	<1
240		<0.1	2.5	18.3	79.2	<1	<1
300		<0.1	2.2	18.4	79.4	<1	<1
360		<0.1	1.9	18.5	79.6	<1	<1
420		<0.1	1.6	18.6	79.8	<1	<1
480		<0.1	1.4	18.6	80.0	<1	<1
540		<0.1	1.2	18.7	80.1	<1	<1
600		<0.1	1.1	18.7	80.2	<1	<1
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	N/A	N/A	N/A	30	30
Steady state value	<0.1	<0.1	N/A	N/A	N/A	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	3.4	18.2	80.2	13	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	14:10
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS107A
Groundwater Level (mbgl)	0.83
Depth to base (mbgl)	2.49

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.4	79.6	<1	<1
Initial	<0.1	<0.1	0.2	20.1	79.7	<1	<1
30	<0.1	<0.1	0.2	20.0	79.8	<1	<1
60	<0.1	<0.1	0.2	20.0	79.8	<1	<1
120	<0.1	<0.1	0.2	20.0	79.8	<1	<1
180		<0.1	0.2	20.0	79.8	<1	<1
240							
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	180	180	180	30	30
Steady state value	<0.1	<0.1	0.2	20.0	79.8	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	0.2	20.0	79.8	<1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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IMS Ref: GMPM
Version: 2.2

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	12:05
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	988	988
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS108
Groundwater Level (mbgl)	0.56
Depth to base (mbgl)	4.83

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1
Initial	<0.1	<0.1	<0.1	20.2	79.8	<1	<1
30	<0.1	<0.1	<0.1	20.0	80.0	<1	<1
60	<0.1	<0.1	<0.1	19.8	80.2	<1	<1
120	<0.1	<0.1	<0.1	19.8	80.2	<1	<1
180		<0.1	<0.1	19.7	80.3	<1	<1
240		<0.1	<0.1	19.7	80.3	<1	<1
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	30	240	240	30	30
Steady state value	<0.1	<0.1	<0.1	19.7	80.3	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	<0.1	19.7	80.3	<1	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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Version: 2.2

Experts in Continuous Monitoring

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	12:20
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	987	987
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS109
Groundwater Level (mbgl)	1.61
Depth to base (mbgl)	3.73

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1
Initial	<0.1	<0.1	4.7	16.4	78.9	3	<1
30	<0.1	<0.1	4.9	16.1	79.0	1	<1
60	<0.1	<0.1	5.1	15.4	79.5	<1	<1
120	<0.1	<0.1	5.2	15.4	79.4	<1	<1
180		<0.1	5.2	15.4	79.4	<1	<1
240		<0.1	5.2	15.3	79.5	<1	<1
300		<0.1	5.2	15.3	79.5	<1	<1
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.6	79.4	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	240	300	300	30	30
Steady state value	<0.1	<0.1	5.2	15.3	79.5	<1	<1
Peak Value (O_2 Low)	<0.1	<0.1	5.2	15.3	79.5	3	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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Version: 2.2

Experts in Continuous Monitoring

MONITORING WELL COMMENTS	
Weather: Alternating heavy and light rain, overcast, gentle breeze, 7 degrees celcius. Periodic monitoring carried out during a falling pressure system.	Extra Notes: Monitoring well is at ground level with headworks slightly raised. Heavy rain preceeding site visit and ground was saturated with standing water over clayey soils. Perched water evident in some monitoring wells.

PROJECT DETAILS			
Project ID	GGS2463	**Date**	21.12.20
Site	School Street, Radcliffe	**Time**	11:50
Specialist	HR		

EQUIPMENT	
Model	**Serial Number**
GasData GFM 435	11028

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	988	988
Borehole Pressure (mb)	NM	NM

BOREHOLE DETAILS	
Borehole ID	WS110
Groundwater Level (mbgl)	1.11
Depth to base (mbgl)	3.00

TIME	Gas Flow	Gas Readings					
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)
Fresh Air	<0.1	<0.1	<0.1	20.4	79.6	<1	<1
Initial	<0.1	<0.1	0.6	19.1	80.3	10	<1
30	<0.1	<0.1	0.7	18.6	80.7	8	<1
60	<0.1	<0.1	0.7	18.6	80.7	6	<1
120	<0.1	<0.1	0.7	18.6	80.7	6	<1
180		<0.1	0.7	18.6	80.7	6	<1
240							
300							
360							
420							
480							
540							
600							
Fresh Air	<0.1	<0.1	<0.1	20.5	79.5	<1	<1

STEADY STATE FINAL RESULTS							
	Flow (l/hr)	CH_4 (%)	CO_2 (%)	O_2 (% v/v)	BAL	CO (ppm)	H_2S (ppm)
Steady state time (s)	30	30	180	180	180	180	30
Steady state value	<0.1	<0.1	0.7	18.6	80.7	6	<1
Peak Value (O_2 Low)	<0.1	<0.1	0.7	18.6	80.7	10	<1

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

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Appendix D

Continuous Monitoring Data

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

Experts in Continuous Monitoring

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS101A
Instrument ID:	GS #0300044
Start Date:	22/12/2020 13:00
End Date:	12/01/2021 11:00

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	503

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.2	16.5	0	0	958	-0.05	-5.0
Maximum	0.4	1.9	18.8	0	1	1022	-0.01	6.9
Range	0.4	1.7	2.3	0	1	64	0.04	12.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
22/12/2020 13:00	0.2	1.9	17.6	0	0	1002	-0.03	6.0
22/12/2020 14:00	0.2	1.6	17.5	0	1	1002	-0.02	6.0
22/12/2020 15:00	0.1	1.3	17.6	0	0	1002	-0.03	5.9
22/12/2020 16:00	0.2	1.2	17.7	0	1	1002	-0.03	5.2
22/12/2020 17:00	0.2	1.0	17.7	0	0	1002	-0.03	4.6
22/12/2020 18:00	0.2	0.9	17.7	0	0	1002	-0.03	3.8
22/12/2020 19:00	0.2	0.9	17.7	0	0	1001	-0.03	3.5
22/12/2020 20:00	0.2	0.8	17.7	0	1	1001	-0.01	3.4
22/12/2020 21:00	0.2	0.8	17.7	0	0	1001	-0.02	3.6
22/12/2020 22:00	0.2	0.7	17.7	0	0	1001	-0.03	4.3
22/12/2020 23:00	0.2	0.7	17.7	0	0	1001	-0.02	4.1
23/12/2020 00:00	0.2	0.7	17.7	0	0	1000	-0.02	4.1
23/12/2020 01:00	0.2	0.6	17.7	0	0	999	-0.02	4.2
23/12/2020 02:00	0.2	0.6	17.7	0	0	999	-0.02	4.3
23/12/2020 03:00	0.2	0.6	17.8	0	0	999	-0.03	4.3
23/12/2020 04:00	0.2	0.6	17.8	0	0	998	-0.03	4.3
23/12/2020 05:00	0.2	0.6	17.8	0	0	997	-0.02	4.2
23/12/2020 06:00	0.2	0.6	17.8	0	0	997	-0.02	4.2
23/12/2020 07:00	0.2	0.6	17.8	0	0	996	-0.02	4.3
23/12/2020 08:00	0.2	0.6	17.8	0	0	996	-0.03	4.3
23/12/2020 09:00	0.2	0.6	17.8	0	0	996	-0.03	4.4
23/12/2020 10:00	0.1	0.6	17.8	0	0	996	-0.03	4.7
23/12/2020 11:00	0.2	0.6	17.8	0	0	996	-0.03	5.2
23/12/2020 12:00	0.2	0.5	17.9	0	0	995	-0.02	5.5
23/12/2020 13:00	0.2	0.5	17.9	0	0	995	-0.03	5.7
23/12/2020 14:00	0.2	0.5	17.9	0	0	995	-0.02	6.0
23/12/2020 15:00	0.2	0.5	18.0	0	0	995	-0.03	5.9
23/12/2020 16:00	0.2	0.5	17.9	0	0	996	-0.03	5.6
23/12/2020 17:00	0.2	0.5	17.9	0	0	997	-0.03	5.4
23/12/2020 18:00	0.3	0.5	17.9	0	0	998	-0.02	5.4
23/12/2020 19:00	0.3	0.6	17.9	0	0	999	-0.03	5.4
23/12/2020 20:00	0.3	0.5	17.9	0	0	1000	-0.03	5.4
23/12/2020 21:00	0.2	0.6	17.9	0	0	1002	-0.03	5.5
23/12/2020 22:00	0.2	0.5	17.9	0	0	1003	-0.03	5.6
23/12/2020 23:00	0.2	0.6	17.9	0	0	1004	-0.03	5.5
24/12/2020 00:00	0.2	0.6	17.9	0	0	1005	-0.03	5.0
24/12/2020 01:00	0.2	0.6	17.9	0	0	1007	-0.03	4.3
24/12/2020 02:00	0.2	0.6	17.8	0	0	1007	-0.03	3.5
24/12/2020 03:00	0.2	0.6	18.0	0	0	1009	-0.03	3.0
24/12/2020 04:00	0.2	0.6	17.7	0	0	1009	-0.03	2.2
24/12/2020 05:00	0.2	0.6	17.6	0	0	1010	-0.02	1.4
24/12/2020 06:00	0.2	0.6	17.9	0	0	1010	-0.02	0.8
24/12/2020 07:00	0.2	0.6	17.7	0	0	1011	-0.02	0.3
24/12/2020 08:00	0.2	0.6	17.8	0	0	1012	-0.01	0.2
24/12/2020 09:00	0.3	0.6	17.6	0	0	1013	-0.02	0.4
24/12/2020 10:00	0.2	0.6	17.7	0	0	1014	-0.02	0.7
24/12/2020 11:00	0.3	0.6	17.6	0	0	1015	-0.02	2.1
24/12/2020 12:00	0.2	0.6	17.6	0	0	1016	-0.02	4.5
24/12/2020 13:00	0.2	0.6	17.6	0	0	1016	-0.04	4.1
24/12/2020 14:00	0.2	0.6	17.7	0	0	1017	-0.04	4.4
24/12/2020 15:00	0.3	0.6	17.7	0	0	1017	-0.03	4.1
24/12/2020 16:00	0.2	0.6	17.7	0	0	1019	-0.04	2.9
24/12/2020 17:00	0.3	0.6	17.6	0	0	1019	-0.03	2.0
24/12/2020 18:00	0.2	0.6	17.6	0	0	1020	-0.02	1.1
24/12/2020 19:00	0.2	0.6	17.5	0	0	1020	-0.02	0.7
24/12/2020 20:00	0.2	0.6	17.4	0	0	1021	-0.02	0.6
24/12/2020 21:00	0.2	0.6	17.4	0	0	1021	-0.02	-0.1
24/12/2020 22:00	0.2	0.6	17.4	0	0	1022	-0.02	-0.6
24/12/2020 23:00	0.2	0.6	17.3	0	0	1022	-0.02	-1.0
25/12/2020 00:00	0.2	0.6	17.3	0	0	1022	-0.02	-1.2
25/12/2020 01:00	0.3	0.6	17.2	0	0	1022	-0.02	-1.5
25/12/2020 02:00	0.2	0.6	17.2	0	0	1022	-0.02	-1.5
25/12/2020 03:00	0.3	0.7	17.2	0	0	1022	-0.02	-2.3
25/12/2020 04:00	0.2	0.6	17.1	0	0	1022	-0.02	-2.7
25/12/2020 05:00	0.2	0.6	17.1	0	0	1022	-0.02	-2.9
25/12/2020 06:00	0.2	0.6	17.1	0	0	1022	-0.02	-2.9
25/12/2020 07:00	0.2	0.6	17.0	0	0	1022	-0.01	-3.3
25/12/2020 08:00	0.2	0.7	17.0	0	0	1022	-0.02	-3.5
25/12/2020 09:00	0.3	0.7	17.0	0	0	1022	-0.02	-3.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
25/12/2020 10:00	0.3	0.7	17.0	0	0	1022	-0.02	-2.8
25/12/2020 11:00	0.2	0.7	17.0	0	0	1022	-0.01	-1.5
25/12/2020 12:00	0.2	0.7	17.1	0	0	1021	-0.02	-0.1
25/12/2020 13:00	0.2	0.7	17.1	0	0	1021	-0.01	1.2
25/12/2020 14:00	0.2	0.7	17.2	0	0	1021	-0.02	1.4
25/12/2020 15:00	0.2	0.7	17.3	0	0	1020	-0.02	1.5
25/12/2020 16:00	0.2	0.7	17.3	0	0	1019	-0.02	1.1
25/12/2020 17:00	0.2	0.7	17.3	0	0	1018	-0.02	1.0
25/12/2020 18:00	0.3	0.7	17.3	0	0	1017	-0.02	1.1
25/12/2020 19:00	0.2	0.7	17.3	0	0	1017	-0.01	1.2
25/12/2020 20:00	0.2	0.7	17.3	0	0	1017	-0.02	1.1
25/12/2020 21:00	0.2	0.7	17.3	0	0	1015	-0.02	1.3
25/12/2020 22:00	0.2	0.7	17.3	0	0	1015	-0.02	1.6
25/12/2020 23:00	0.2	0.7	17.4	0	0	1014	-0.02	2.0
26/12/2020 00:00	0.2	0.7	17.4	0	0	1013	-0.02	2.4
26/12/2020 01:00	0.3	0.7	17.4	0	0	1012	-0.02	2.5
26/12/2020 02:00	0.2	0.7	17.4	0	0	1011	-0.03	2.9
26/12/2020 03:00	0.2	0.7	17.5	0	0	1010	-0.02	3.3
26/12/2020 04:00	0.2	0.7	17.5	0	0	1009	-0.02	3.8
26/12/2020 05:00	0.2	0.7	17.6	0	0	1008	-0.03	4.2
26/12/2020 06:00	0.2	0.7	17.6	0	0	1007	-0.03	4.5
26/12/2020 07:00	0.2	0.7	17.7	0	0	1007	-0.04	4.7
26/12/2020 08:00	0.2	0.7	17.7	0	0	1006	-0.03	5.1
26/12/2020 09:00	0.2	0.6	17.7	0	0	1005	-0.04	5.0
26/12/2020 10:00	0.2	0.6	17.7	0	0	1004	-0.04	5.1
26/12/2020 11:00	0.2	0.6	17.8	0	0	1003	-0.04	5.5
26/12/2020 12:00	0.2	0.6	17.8	0	0	1001	-0.03	6.0
26/12/2020 13:00	0.2	0.6	17.8	0	0	999	-0.04	6.1
26/12/2020 14:00	0.2	0.6	17.9	0	0	996	-0.03	6.2
26/12/2020 15:00	0.2	0.6	17.9	0	0	994	-0.03	6.2
26/12/2020 16:00	0.2	0.6	17.9	0	0	992	-0.05	6.1
26/12/2020 17:00	0.3	0.6	17.9	0	0	990	-0.03	6.1
26/12/2020 18:00	0.2	0.6	17.9	0	0	988	-0.03	6.2
26/12/2020 19:00	0.2	0.6	17.9	0	0	985	-0.03	6.1
26/12/2020 20:00	0.2	0.6	17.9	0	0	982	-0.03	6.2
26/12/2020 21:00	0.2	0.6	17.9	0	0	979	-0.04	6.2
26/12/2020 22:00	0.2	0.6	17.9	0	0	976	-0.03	6.3
26/12/2020 23:00	0.2	0.7	17.9	0	0	972	-0.02	6.5
27/12/2020 00:00	0.2	0.7	17.9	0	0	970	-0.03	6.5
27/12/2020 01:00	0.2	0.7	17.9	0	0	967	-0.03	6.4
27/12/2020 02:00	0.2	0.6	17.9	0	0	965	-0.03	6.4
27/12/2020 03:00	0.2	0.6	17.9	0	0	964	-0.03	5.8
27/12/2020 04:00	0.3	0.5	17.9	0	0	963	-0.03	5.4
27/12/2020 05:00	0.2	0.4	17.9	0	0	963	-0.04	4.7
27/12/2020 06:00	0.2	0.4	17.8	0	0	963	-0.04	3.7
27/12/2020 07:00	0.2	0.4	17.7	0	0	962	-0.03	2.6
27/12/2020 08:00	0.3	0.4	17.7	0	0	963	-0.04	2.3
27/12/2020 09:00	0.2	0.3	17.6	0	0	963	-0.04	2.3
27/12/2020 10:00	0.2	0.3	17.6	0	0	962	-0.03	2.5
27/12/2020 11:00	0.2	0.3	17.6	0	0	962	-0.04	3.3
27/12/2020 12:00	0.2	0.3	17.6	0	0	961	-0.04	4.5
27/12/2020 13:00	0.2	0.3	17.7	0	0	960	-0.04	5.1
27/12/2020 14:00	0.2	0.3	17.7	0	0	960	-0.03	4.8
27/12/2020 15:00	0.2	0.3	17.8	0	1	959	-0.03	5.5
27/12/2020 16:00	0.3	0.3	17.8	0	1	959	-0.03	4.3
27/12/2020 17:00	0.2	0.3	17.7	0	0	959	-0.03	3.1
27/12/2020 18:00	0.2	0.2	17.7	0	0	959	-0.02	2.2
27/12/2020 19:00	0.2	0.2	17.6	0	0	959	-0.03	1.7
27/12/2020 20:00	0.2	0.2	17.6	0	0	959	-0.03	2.2
27/12/2020 21:00	0.2	0.2	17.5	0	0	959	-0.03	2.2
27/12/2020 22:00	0.2	0.2	17.5	0	0	959	-0.02	2.1
27/12/2020 23:00	0.2	0.2	17.5	0	0	959	-0.02	1.6
28/12/2020 00:00	0.2	0.2	17.5	0	1	959	-0.03	1.6
28/12/2020 01:00	0.2	0.2	17.5	0	0	959	-0.02	1.1
28/12/2020 02:00	0.2	0.2	17.4	0	0	958	-0.02	0.9
28/12/2020 03:00	0.3	0.2	17.4	0	0	958	-0.02	1.0
28/12/2020 04:00	0.3	0.2	17.4	0	0	958	-0.03	1.3
28/12/2020 05:00	0.2	0.2	17.4	0	0	958	-0.03	1.7
28/12/2020 06:00	0.3	0.2	17.4	0	0	959	-0.02	1.7
28/12/2020 07:00	0.2	0.2	17.4	0	0	961	-0.02	1.7
28/12/2020 08:00	0.2	0.2	17.4	0	0	961	-0.03	1.7
28/12/2020 09:00	0.2	0.2	17.5	0	1	963	-0.02	1.8
28/12/2020 10:00	0.2	0.2	17.5	0	0	964	-0.02	2.1
28/12/2020 11:00	0.2	0.2	17.5	0	0	965	-0.02	2.5
28/12/2020 12:00	0.2	0.3	17.5	0	0	966	-0.02	3.0
28/12/2020 13:00	0.2	0.3	17.5	0	0	966	-0.02	3.7
28/12/2020 14:00	0.2	0.3	17.6	0	0	967	-0.04	3.8
28/12/2020 15:00	0.2	0.3	17.6	0	0	968	-0.03	3.6
28/12/2020 16:00	0.2	0.3	17.6	0	0	968	-0.04	3.1
28/12/2020 17:00	0.2	0.4	17.6	0	0	969	-0.04	2.7
28/12/2020 18:00	0.2	0.4	17.6	0	0	969	-0.03	1.8
28/12/2020 19:00	0.2	0.4	17.5	0	0	970	-0.02	1.5
28/12/2020 20:00	0.2	0.4	17.5	0	0	970	-0.03	1.6
28/12/2020 21:00	0.2	0.4	17.5	0	0	971	-0.02	1.9
28/12/2020 22:00	0.2	0.4	17.5	0	0	972	-0.03	1.9
28/12/2020 23:00	0.2	0.4	17.5	0	0	972	-0.02	1.9
29/12/2020 00:00	0.2	0.4	17.5	0	0	972	-0.02	1.1
29/12/2020 01:00	0.2	0.4	17.4	0	0	973	-0.02	1.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
29/12/2020 02:00	0.2	0.4	17.4	0	0	973	-0.03	1.2
29/12/2020 03:00	0.2	0.4	17.4	0	0	974	-0.03	0.8
29/12/2020 04:00	0.3	0.4	17.4	0	0	975	-0.02	-0.1
29/12/2020 05:00	0.3	0.4	17.3	0	0	975	-0.02	-0.3
29/12/2020 06:00	0.3	0.4	17.3	0	0	975	-0.02	0.0
29/12/2020 07:00	0.2	0.4	17.3	0	0	976	-0.02	0.1
29/12/2020 08:00	0.3	0.4	17.3	0	0	977	-0.02	0.7
29/12/2020 09:00	0.2	0.4	17.3	0	0	978	-0.02	0.8
29/12/2020 10:00	0.2	0.4	17.3	0	0	979	-0.03	1.3
29/12/2020 11:00	0.2	0.4	17.4	0	0	980	-0.02	2.0
29/12/2020 12:00	0.2	0.4	17.4	0	0	981	-0.02	3.0
29/12/2020 13:00	0.3	0.4	17.5	0	0	982	-0.02	3.6
29/12/2020 14:00	0.2	0.4	17.5	0	0	983	-0.03	3.5
29/12/2020 15:00	0.2	0.4	17.6	0	0	984	-0.03	2.6
29/12/2020 16:00	0.3	0.5	17.5	0	0	985	-0.02	1.6
29/12/2020 17:00	0.3	0.5	17.5	0	0	986	-0.02	0.9
29/12/2020 18:00	0.2	0.5	17.4	0	0	986	-0.01	0.2
29/12/2020 19:00	0.2	0.5	17.3	0	0	987	-0.03	-0.9
29/12/2020 20:00	0.3	0.6	17.2	0	0	987	-0.02	-1.6
29/12/2020 21:00	0.2	0.6	17.2	0	0	988	-0.01	-2.0
29/12/2020 22:00	0.3	0.6	17.1	0	0	988	-0.02	-2.4
29/12/2020 23:00	0.2	0.6	17.1	0	0	989	-0.02	-2.7
30/12/2020 00:00	0.2	0.6	17.0	0	0	989	-0.02	-2.7
30/12/2020 01:00	0.2	0.6	17.0	0	0	989	-0.02	-1.7
30/12/2020 02:00	0.2	0.6	17.0	0	0	989	-0.02	-1.1
30/12/2020 03:00	0.3	0.7	17.0	0	0	989	-0.03	-0.8
30/12/2020 04:00	0.3	0.7	17.1	0	0	989	-0.02	-0.6
30/12/2020 05:00	0.2	0.7	17.1	0	0	990	-0.02	-0.3
30/12/2020 06:00	0.2	0.7	17.1	0	0	990	-0.01	0.0
30/12/2020 07:00	0.3	0.7	17.1	0	0	990	-0.02	0.1
30/12/2020 08:00	0.2	0.7	17.2	0	0	990	-0.02	0.1
30/12/2020 09:00	0.2	0.7	17.2	0	0	991	-0.02	0.4
30/12/2020 10:00	0.2	0.7	17.2	0	0	991	-0.02	0.7
30/12/2020 11:00	0.2	0.7	17.2	0	0	992	-0.02	1.4
30/12/2020 12:00	0.2	0.7	17.3	0	0	991	-0.03	2.1
30/12/2020 13:00	0.2	0.7	17.3	0	0	991	-0.02	2.4
30/12/2020 14:00	0.2	0.7	17.4	0	0	992	-0.02	3.0
30/12/2020 15:00	0.3	0.7	17.4	0	0	992	-0.03	2.9
30/12/2020 16:00	0.2	0.7	17.4	0	0	992	-0.02	2.3
30/12/2020 17:00	0.2	0.8	17.4	0	0	992	-0.02	2.1
30/12/2020 18:00	0.2	0.8	17.4	0	0	993	-0.02	1.8
30/12/2020 19:00	0.2	0.8	17.4	0	0	993	-0.02	1.6
30/12/2020 20:00	0.2	0.8	17.4	0	0	993	-0.02	1.3
30/12/2020 21:00	0.2	0.8	17.3	0	0	993	-0.03	1.0
30/12/2020 22:00	0.2	0.8	17.3	0	0	993	-0.02	0.7
30/12/2020 23:00	0.2	0.8	17.3	0	0	993	-0.02	0.5
31/12/2020 00:00	0.2	0.8	17.2	0	0	993	-0.02	0.4
31/12/2020 01:00	0.3	0.8	17.2	0	0	993	-0.02	0.3
31/12/2020 02:00	0.2	0.8	17.2	0	0	993	-0.02	0.4
31/12/2020 03:00	0.3	0.8	17.2	0	0	993	-0.02	0.5
31/12/2020 04:00	0.2	0.8	17.2	0	0	993	-0.02	0.6
31/12/2020 05:00	0.3	0.8	17.2	0	0	993	-0.03	0.7
31/12/2020 06:00	0.3	0.8	17.2	0	0	993	-0.02	0.7
31/12/2020 07:00	0.2	0.8	17.2	0	0	993	-0.03	0.8
31/12/2020 08:00	0.2	0.9	17.2	0	0	993	-0.02	0.7
31/12/2020 09:00	0.2	0.9	17.2	0	1	994	-0.02	0.8
31/12/2020 10:00	0.2	0.8	17.2	0	0	994	-0.02	0.9
31/12/2020 11:00	0.2	0.8	17.2	0	0	994	-0.03	1.0
31/12/2020 12:00	0.2	0.9	17.3	0	0	994	-0.02	1.3
31/12/2020 13:00	0.2	0.8	17.3	0	0	994	-0.02	2.6
31/12/2020 14:00	0.2	0.8	17.4	0	0	994	-0.03	2.9
31/12/2020 15:00	0.2	0.9	17.4	0	0	994	-0.01	2.9
31/12/2020 16:00	0.2	0.9	17.4	0	0	995	-0.03	2.2
31/12/2020 17:00	0.2	0.8	17.4	0	0	996	-0.03	1.6
31/12/2020 18:00	0.2	0.9	17.4	0	0	996	-0.02	1.5
31/12/2020 19:00	0.3	0.9	17.3	0	0	996	-0.02	1.3
31/12/2020 20:00	0.2	0.9	17.3	0	0	997	-0.02	1.1
31/12/2020 21:00	0.2	0.9	17.3	0	0	998	-0.03	1.0
31/12/2020 22:00	0.2	0.9	17.3	0	0	998	-0.02	0.7
31/12/2020 23:00	0.2	0.9	17.3	0	0	999	-0.03	0.9
01/01/2021 00:00	0.2	0.9	17.2	0	0	999	-0.03	0.9
01/01/2021 01:00	0.2	0.9	17.2	0	0	999	-0.03	0.9
01/01/2021 02:00	0.2	0.9	17.2	0	0	999	-0.03	0.8
01/01/2021 03:00	0.3	1.0	17.2	0	0	1000	-0.03	0.8
01/01/2021 04:00	0.3	1.0	17.2	0	0	1000	-0.02	0.9
01/01/2021 05:00	0.3	1.0	17.2	0	0	1000	-0.02	0.9
01/01/2021 06:00	0.2	1.0	17.2	0	0	1000	-0.02	0.9
01/01/2021 07:00	0.2	1.0	17.2	0	0	1000	-0.02	0.8
01/01/2021 08:00	0.2	1.0	17.2	0	0	1001	-0.02	0.0
01/01/2021 09:00	0.2	1.0	17.2	0	0	1002	-0.02	-0.3
01/01/2021 10:00	0.3	1.0	17.2	0	1	1002	-0.03	0.5
01/01/2021 11:00	0.3	1.0	17.2	0	0	1002	-0.02	1.9
01/01/2021 12:00	0.2	1.0	17.3	0	0	1003	-0.02	3.4
01/01/2021 13:00	0.2	1.0	17.4	0	0	1002	-0.03	3.9
01/01/2021 14:00	0.2	1.0	17.4	0	0	1002	-0.02	4.0
01/01/2021 15:00	0.3	1.0	17.5	0	0	1003	-0.02	3.7
01/01/2021 16:00	0.3	1.0	17.5	0	0	1003	-0.03	2.9
01/01/2021 17:00	0.2	1.0	17.4	0	0	1003	-0.02	1.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
01/01/2021 18:00	0.3	1.1	17.3	0	0	1004	-0.03	0.4
01/01/2021 19:00	0.2	1.1	17.3	0	0	1004	-0.02	-0.7
01/01/2021 20:00	0.3	1.1	17.2	0	0	1005	-0.02	-1.5
01/01/2021 21:00	0.2	1.1	17.1	0	0	1005	-0.02	-1.7
01/01/2021 22:00	0.3	1.1	17.1	0	0	1006	-0.02	-2.2
01/01/2021 23:00	0.2	1.1	17.0	0	0	1006	-0.02	-2.7
02/01/2021 00:00	0.3	1.1	16.9	0	0	1006	-0.01	-2.7
02/01/2021 01:00	0.3	1.1	16.9	0	0	1006	-0.02	-3.1
02/01/2021 02:00	0.2	1.1	16.9	0	0	1007	-0.01	-3.0
02/01/2021 03:00	0.3	1.1	17.2	0	0	1007	-0.02	-3.5
02/01/2021 04:00	0.3	1.1	17.2	0	0	1007	-0.02	-3.9
02/01/2021 05:00	0.3	1.1	17.1	0	0	1006	-0.01	-4.0
02/01/2021 06:00	0.2	1.1	16.8	0	0	1006	-0.01	-4.3
02/01/2021 07:00	0.3	1.1	16.7	0	0	1006	-0.02	-4.5
02/01/2021 08:00	0.3	1.1	16.7	0	0	1006	-0.02	-4.6
02/01/2021 09:00	0.2	1.2	16.7	0	0	1006	-0.01	-3.6
02/01/2021 10:00	0.3	1.1	16.7	0	0	1006	-0.02	-2.2
02/01/2021 11:00	0.3	1.1	16.8	0	0	1006	-0.02	-1.2
02/01/2021 12:00	0.3	1.1	16.8	0	0	1006	-0.01	0.9
02/01/2021 13:00	0.3	1.2	17.0	0	0	1006	-0.02	2.7
02/01/2021 14:00	0.3	1.2	17.1	0	0	1006	-0.02	2.3
02/01/2021 15:00	0.2	1.2	17.1	0	0	1006	-0.03	1.3
02/01/2021 16:00	0.3	1.2	17.1	0	0	1006	-0.02	1.0
02/01/2021 17:00	0.2	1.2	17.1	0	0	1007	-0.02	0.8
02/01/2021 18:00	0.3	1.2	17.1	0	0	1007	-0.03	0.7
02/01/2021 19:00	0.2	1.2	17.1	0	0	1007	-0.02	0.2
02/01/2021 20:00	0.2	1.2	17.0	0	0	1008	-0.02	-0.3
02/01/2021 21:00	0.3	1.3	17.0	0	0	1008	-0.02	-0.6
02/01/2021 22:00	0.2	1.3	17.0	0	0	1008	-0.03	-0.5
02/01/2021 23:00	0.2	1.3	17.0	0	0	1008	-0.02	-0.2
03/01/2021 00:00	0.2	1.3	17.0	0	0	1009	-0.01	-0.5
03/01/2021 01:00	0.3	1.3	17.0	0	0	1009	-0.03	-0.5
03/01/2021 02:00	0.2	1.3	17.0	0	0	1009	-0.02	-0.3
03/01/2021 03:00	0.2	1.3	17.0	0	0	1009	-0.02	0.0
03/01/2021 04:00	0.3	1.3	17.0	0	0	1009	-0.03	-0.4
03/01/2021 05:00	0.2	1.3	17.0	0	0	1009	-0.02	-0.6
03/01/2021 06:00	0.3	1.3	16.9	0	0	1009	-0.02	-0.5
03/01/2021 07:00	0.2	1.3	16.9	0	0	1009	-0.02	-0.6
03/01/2021 08:00	0.3	1.3	16.9	0	0	1009	-0.02	-0.6
03/01/2021 09:00	0.2	1.3	16.9	0	0	1010	-0.02	-0.4
03/01/2021 10:00	0.2	1.3	16.9	0	0	1010	-0.02	0.1
03/01/2021 11:00	0.2	1.3	17.0	0	0	1011	-0.02	2.0
03/01/2021 12:00	0.3	1.3	17.1	0	0	1010	-0.02	4.2
03/01/2021 13:00	0.2	1.3	17.3	0	0	1010	-0.03	5.0
03/01/2021 14:00	0.2	1.3	17.3	0	0	1010	-0.02	4.0
03/01/2021 15:00	0.2	1.3	17.4	0	0	1011	-0.02	3.5
03/01/2021 16:00	0.2	1.3	17.3	0	0	1011	-0.02	2.5
03/01/2021 17:00	0.3	1.3	17.3	0	0	1011	-0.03	1.6
03/01/2021 18:00	0.2	1.3	17.2	0	0	1011	-0.02	1.4
03/01/2021 19:00	0.2	1.4	17.2	0	0	1012	-0.02	0.9
03/01/2021 20:00	0.2	1.4	17.1	0	0	1013	-0.01	0.5
03/01/2021 21:00	0.2	1.4	17.1	0	0	1013	-0.02	-0.1
03/01/2021 22:00	0.2	1.4	17.0	0	0	1013	-0.02	-0.3
03/01/2021 23:00	0.2	1.4	17.0	0	0	1014	-0.02	-1.0
04/01/2021 00:00	0.3	1.4	17.0	0	0	1014	-0.02	-0.2
04/01/2021 01:00	0.3	1.4	17.0	0	0	1014	-0.02	-0.2
04/01/2021 02:00	0.2	1.4	17.0	0	0	1014	-0.02	0.0
04/01/2021 03:00	0.3	1.4	17.0	0	0	1014	-0.02	-0.7
04/01/2021 04:00	0.2	1.5	17.0	0	0	1014	-0.02	-1.2
04/01/2021 05:00	0.2	1.5	16.9	0	0	1014	-0.02	-1.4
04/01/2021 06:00	0.2	1.5	16.9	0	0	1014	-0.02	-0.7
04/01/2021 07:00	0.3	1.5	16.9	0	0	1014	-0.02	-0.2
04/01/2021 08:00	0.2	1.5	16.9	0	0	1014	-0.01	-0.4
04/01/2021 09:00	0.3	1.5	16.9	0	0	1015	-0.02	-0.1
04/01/2021 10:00	0.2	1.5	16.9	0	0	1015	-0.02	0.3
04/01/2021 11:00	0.3	1.5	17.0	0	0	1015	-0.02	1.8
04/01/2021 12:00	0.2	1.5	17.1	0	0	1015	-0.02	2.3
04/01/2021 13:00	0.3	1.5	17.1	0	0	1015	-0.02	3.0
04/01/2021 14:00	0.1	1.5	17.2	0	0	1014	-0.02	3.5
04/01/2021 15:00	0.2	1.5	17.2	0	0	1014	-0.02	3.2
04/01/2021 16:00	0.2	1.5	17.3	0	0	1014	-0.03	2.6
04/01/2021 17:00	0.3	1.5	17.2	0	0	1015	-0.02	2.0
04/01/2021 18:00	0.3	1.5	17.2	0	0	1015	-0.02	1.5
04/01/2021 19:00	0.2	1.5	17.2	0	0	1015	-0.02	1.5
04/01/2021 20:00	0.2	1.5	17.1	0	0	1015	-0.02	1.2
04/01/2021 21:00	0.2	1.5	17.1	0	0	1015	-0.03	1.0
04/01/2021 22:00	0.2	1.5	17.1	0	0	1015	-0.02	1.3
04/01/2021 23:00	0.2	1.5	17.1	0	0	1015	-0.02	1.3
05/01/2021 00:00	0.3	1.5	17.1	0	0	1015	-0.02	1.4
05/01/2021 01:00	0.2	1.5	17.1	0	0	1015	-0.02	1.2
05/01/2021 02:00	0.2	1.6	17.1	0	0	1015	-0.02	0.8
05/01/2021 03:00	0.3	1.5	17.1	0	0	1014	-0.02	0.6
05/01/2021 04:00	0.3	1.5	17.0	0	0	1014	-0.02	0.2
05/01/2021 05:00	0.3	1.5	17.0	0	0	1014	-0.03	0.4
05/01/2021 06:00	0.2	1.5	17.0	0	0	1014	-0.01	0.7
05/01/2021 07:00	0.3	1.5	17.0	0	0	1014	-0.02	0.7
05/01/2021 08:00	0.3	1.6	17.0	0	0	1014	-0.02	0.8
05/01/2021 09:00	0.3	1.6	17.0	0	0	1015	-0.02	0.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
05/01/2021 10:00	0.2	1.6	17.0	0	0	1015	-0.02	1.4
05/01/2021 11:00	0.2	1.5	17.1	0	0	1015	-0.02	1.9
05/01/2021 12:00	0.2	1.6	17.1	0	0	1015	-0.02	3.2
05/01/2021 13:00	0.2	1.5	17.2	0	0	1014	-0.04	4.8
05/01/2021 14:00	0.3	1.5	17.3	0	0	1014	-0.02	4.9
05/01/2021 15:00	0.3	1.5	17.4	0	0	1014	-0.02	4.0
05/01/2021 16:00	0.2	1.5	17.3	0	0	1014	-0.02	2.6
05/01/2021 17:00	0.3	1.5	17.3	0	0	1014	-0.03	2.1
05/01/2021 18:00	0.3	1.5	17.2	0	0	1014	-0.02	1.4
05/01/2021 19:00	0.2	1.6	17.2	0	0	1014	-0.02	1.4
05/01/2021 20:00	0.2	1.6	17.2	0	0	1015	-0.02	1.4
05/01/2021 21:00	0.2	1.6	17.1	0	0	1014	-0.03	1.4
05/01/2021 22:00	0.2	1.6	17.1	0	0	1014	-0.02	0.7
05/01/2021 23:00	0.3	1.6	17.1	0	0	1014	-0.02	0.1
06/01/2021 00:00	0.2	1.6	17.0	0	0	1014	-0.02	-0.5
06/01/2021 01:00	0.3	1.6	17.0	0	0	1014	-0.02	-0.6
06/01/2021 02:00	0.3	1.6	16.9	0	0	1014	-0.02	-1.6
06/01/2021 03:00	0.3	1.6	16.9	0	0	1014	-0.02	-1.9
06/01/2021 04:00	0.3	1.6	16.8	0	0	1013	-0.01	-0.8
06/01/2021 05:00	0.2	1.6	16.9	0	0	1013	-0.02	-0.3
06/01/2021 06:00	0.2	1.6	16.9	0	0	1012	-0.02	-0.5
06/01/2021 07:00	0.2	1.6	16.9	0	0	1012	-0.02	-1.0
06/01/2021 08:00	0.3	1.6	16.8	0	0	1013	-0.01	-1.6
06/01/2021 09:00	0.2	1.6	16.8	0	0	1013	-0.01	-1.8
06/01/2021 10:00	0.3	1.6	16.8	0	0	1013	-0.03	-0.8
06/01/2021 11:00	0.2	1.6	16.8	0	0	1013	-0.02	0.0
06/01/2021 12:00	0.2	1.6	16.9	0	0	1012	-0.02	2.9
06/01/2021 13:00	0.2	1.6	17.1	0	0	1011	-0.02	4.5
06/01/2021 14:00	0.3	1.6	17.2	0	0	1011	-0.02	3.5
06/01/2021 15:00	0.3	1.6	17.2	0	0	1011	-0.02	2.9
06/01/2021 16:00	0.2	1.6	17.2	0	0	1011	-0.02	1.8
06/01/2021 17:00	0.3	1.6	17.1	0	0	1011	-0.03	0.1
06/01/2021 18:00	0.2	1.6	17.0	0	0	1011	-0.02	-1.4
06/01/2021 19:00	0.3	1.6	16.9	0	0	1011	-0.02	-2.3
06/01/2021 20:00	0.2	1.6	16.8	0	0	1011	-0.02	-2.9
06/01/2021 21:00	0.3	1.7	16.8	0	0	1011	-0.02	-3.4
06/01/2021 22:00	0.3	1.6	16.7	0	0	1010	-0.01	-3.9
06/01/2021 23:00	0.3	1.6	16.7	0	0	1010	-0.01	-4.2
07/01/2021 00:00	0.2	1.6	16.6	0	0	1010	-0.02	-4.5
07/01/2021 01:00	0.3	1.6	16.6	0	0	1010	-0.02	-4.7
07/01/2021 02:00	0.3	1.6	16.5	0	0	1009	-0.02	-5.0
07/01/2021 03:00	0.3	1.6	16.5	0	0	1009	-0.02	-5.0
07/01/2021 04:00	0.3	1.6	16.5	0	0	1009	-0.01	-3.6
07/01/2021 05:00	0.3	1.6	16.5	0	0	1008	-0.02	-2.6
07/01/2021 06:00	0.3	1.6	16.6	0	0	1008	-0.02	-2.0
07/01/2021 07:00	0.2	1.6	16.6	0	0	1008	-0.03	-1.6
07/01/2021 08:00	0.2	1.6	16.7	0	0	1008	-0.02	-1.3
07/01/2021 09:00	0.3	1.6	16.7	0	0	1008	-0.02	-1.0
07/01/2021 10:00	0.3	1.6	16.7	0	0	1008	-0.02	-0.6
07/01/2021 11:00	0.3	1.6	16.7	0	0	1008	-0.02	0.1
07/01/2021 12:00	0.3	1.6	16.8	0	0	1007	-0.02	0.7
07/01/2021 13:00	0.2	1.6	16.8	0	0	1007	-0.01	1.2
07/01/2021 14:00	0.2	1.6	16.9	0	0	1006	-0.02	1.5
07/01/2021 15:00	0.3	1.6	16.9	0	0	1006	-0.02	1.0
07/01/2021 16:00	0.3	1.6	16.9	0	0	1006	-0.02	0.8
07/01/2021 17:00	0.3	1.6	16.9	0	0	1006	-0.02	0.5
07/01/2021 18:00	0.3	1.6	16.9	0	0	1006	-0.02	0.5
07/01/2021 19:00	0.3	1.6	16.9	0	0	1006	-0.01	0.5
07/01/2021 20:00	0.3	1.6	16.9	0	0	1006	-0.02	0.5
07/01/2021 21:00	0.2	1.6	16.9	0	0	1006	-0.02	0.5
07/01/2021 22:00	0.2	1.6	16.9	0	0	1006	-0.02	0.6
07/01/2021 23:00	0.3	1.6	16.9	0	0	1006	-0.02	0.4
08/01/2021 00:00	0.2	1.6	16.9	0	0	1006	-0.02	0.4
08/01/2021 01:00	0.2	1.6	16.9	0	0	1006	-0.02	0.4
08/01/2021 02:00	0.2	1.6	16.9	0	0	1005	-0.01	0.5
08/01/2021 03:00	0.3	1.6	16.9	0	0	1006	-0.02	0.5
08/01/2021 04:00	0.2	1.6	16.9	0	0	1006	-0.02	0.6
08/01/2021 05:00	0.2	1.7	16.9	0	0	1005	-0.02	0.5
08/01/2021 06:00	0.3	1.6	16.9	0	0	1006	-0.02	0.6
08/01/2021 07:00	0.2	1.6	16.9	0	0	1006	-0.02	0.7
08/01/2021 08:00	0.2	1.7	17.0	0	0	1006	-0.02	0.6
08/01/2021 09:00	0.3	1.6	17.0	0	0	1007	-0.02	0.7
08/01/2021 10:00	0.2	1.7	17.0	0	0	1007	-0.01	1.3
08/01/2021 11:00	0.2	1.7	17.0	0	0	1008	-0.02	1.8
08/01/2021 12:00	0.2	1.7	17.0	0	0	1008	-0.02	2.4
08/01/2021 13:00	0.2	1.6	17.1	0	0	1008	-0.02	2.9
08/01/2021 14:00	0.2	1.6	17.1	0	0	1008	-0.02	3.0
08/01/2021 15:00	0.2	1.6	17.2	0	0	1009	-0.02	2.9
08/01/2021 16:00	0.3	1.6	17.2	0	0	1010	-0.02	2.4
08/01/2021 17:00	0.3	1.6	17.2	0	0	1010	-0.02	2.1
08/01/2021 18:00	0.2	1.7	17.2	0	0	1011	-0.02	1.5
08/01/2021 19:00	0.2	1.7	17.1	0	0	1011	-0.02	1.1
08/01/2021 20:00	0.3	1.6	17.1	0	0	1012	-0.02	1.2
08/01/2021 21:00	0.2	1.7	17.1	0	0	1012	-0.02	1.3
08/01/2021 22:00	0.2	1.7	17.1	0	0	1013	-0.02	0.9
08/01/2021 23:00	0.2	1.6	17.1	0	0	1013	-0.02	0.9
09/01/2021 00:00	0.3	1.7	17.0	0	0	1013	-0.01	0.6
09/01/2021 01:00	0.2	1.7	17.0	0	0	1014	-0.02	0.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
09/01/2021 02:00	0.2	1.7	17.0	0	0	1014	-0.01	0.6
09/01/2021 03:00	0.2	1.7	17.0	0	0	1014	-0.02	0.6
09/01/2021 04:00	0.3	1.7	17.1	0	0	1014	-0.02	-0.1
09/01/2021 05:00	0.2	1.7	17.0	0	0	1015	-0.02	-1.2
09/01/2021 06:00	0.4	1.7	16.9	0	0	1015	-0.02	-1.3
09/01/2021 07:00	0.3	1.7	16.9	0	0	1015	-0.02	-1.6
09/01/2021 08:00	0.3	1.7	16.9	0	0	1015	-0.01	-1.7
09/01/2021 09:00	0.2	1.7	16.8	0	0	1016	-0.02	-2.3
09/01/2021 10:00	0.3	1.7	16.8	0	0	1016	-0.02	-0.8
09/01/2021 11:00	0.2	1.7	16.8	0	0	1016	-0.02	0.2
09/01/2021 12:00	0.3	1.7	16.9	0	0	1016	-0.01	1.2
09/01/2021 13:00	0.2	1.7	17.1	0	0	1016	-0.02	2.3
09/01/2021 14:00	0.3	1.7	17.1	0	0	1015	-0.01	2.2
09/01/2021 15:00	0.2	1.7	17.1	0	0	1015	-0.02	2.3
09/01/2021 16:00	0.2	1.7	17.2	0	0	1015	-0.03	1.1
09/01/2021 17:00	0.3	1.7	17.2	0	0	1015	-0.02	1.1
09/01/2021 18:00	0.2	1.7	17.1	0	0	1015	-0.02	0.8
09/01/2021 19:00	0.3	1.7	17.1	0	0	1015	-0.03	0.7
09/01/2021 20:00	0.2	1.7	17.1	0	0	1015	-0.01	-0.2
09/01/2021 21:00	0.2	1.7	17.1	0	0	1015	-0.02	-0.8
09/01/2021 22:00	0.3	1.7	17.0	0	0	1015	-0.01	-0.6
09/01/2021 23:00	0.2	1.7	17.0	0	0	1015	-0.01	-0.7
10/01/2021 00:00	0.2	1.7	17.0	0	0	1015	-0.01	-0.1
10/01/2021 01:00	0.3	1.7	17.0	0	0	1015	-0.02	0.2
10/01/2021 02:00	0.2	1.7	17.0	0	0	1014	-0.02	0.4
10/01/2021 03:00	0.2	1.7	17.0	0	0	1015	-0.02	0.6
10/01/2021 04:00	0.2	1.7	17.1	0	0	1014	-0.01	0.7
10/01/2021 05:00	0.2	1.7	17.1	0	0	1014	-0.02	0.9
10/01/2021 06:00	0.2	1.7	17.1	0	0	1014	-0.02	1.2
10/01/2021 07:00	0.2	1.7	17.1	0	0	1014	-0.02	1.1
10/01/2021 08:00	0.3	1.7	17.2	0	0	1014	-0.02	1.3
10/01/2021 09:00	0.2	1.7	17.2	0	0	1014	-0.02	1.4
10/01/2021 10:00	0.3	1.7	17.3	0	0	1014	-0.01	1.7
10/01/2021 11:00	0.2	1.7	17.3	0	0	1014	-0.02	2.3
10/01/2021 12:00	0.3	1.7	17.4	0	0	1014	-0.02	2.7
10/01/2021 13:00	0.3	1.7	17.4	0	0	1013	-0.02	3.0
10/01/2021 14:00	0.3	1.7	17.5	0	0	1012	-0.02	3.5
10/01/2021 15:00	0.2	1.7	17.6	0	0	1012	-0.02	3.7
10/01/2021 16:00	0.3	1.7	17.6	0	0	1012	-0.02	3.8
10/01/2021 17:00	0.2	1.6	17.6	0	0	1011	-0.01	3.8
10/01/2021 18:00	0.3	1.6	17.7	0	0	1011	-0.02	4.0
10/01/2021 19:00	0.2	1.6	17.7	0	0	1011	-0.02	3.9
10/01/2021 20:00	0.3	1.6	17.7	0	0	1010	-0.02	3.9
10/01/2021 21:00	0.2	1.6	17.8	0	0	1010	-0.02	3.8
10/01/2021 22:00	0.2	1.7	17.8	0	0	1010	-0.02	3.8
10/01/2021 23:00	0.2	1.6	17.8	0	0	1010	-0.02	3.9
11/01/2021 00:00	0.3	1.6	17.8	0	0	1009	-0.02	3.9
11/01/2021 01:00	0.3	1.6	17.8	0	0	1008	-0.02	3.8
11/01/2021 02:00	0.3	1.6	17.8	0	1	1008	-0.02	3.9
11/01/2021 03:00	0.2	1.6	17.9	0	0	1007	-0.03	3.9
11/01/2021 04:00	0.3	1.6	17.9	0	0	1007	-0.03	3.9
11/01/2021 05:00	0.3	1.6	17.9	0	0	1006	-0.02	4.1
11/01/2021 06:00	0.3	1.6	17.9	0	0	1005	-0.03	4.2
11/01/2021 07:00	0.3	1.6	18.0	0	0	1005	-0.03	4.3
11/01/2021 08:00	0.3	1.6	18.0	0	0	1004	-0.04	4.4
11/01/2021 09:00	0.3	1.6	18.0	0	0	1004	-0.05	4.3
11/01/2021 10:00	0.4	1.6	18.0	0	0	1004	-0.03	4.5
11/01/2021 11:00	0.3	1.6	18.1	0	0	1003	-0.02	4.7
11/01/2021 12:00	0.3	1.5	18.1	0	0	1003	-0.03	5.0
11/01/2021 13:00	0.4	1.6	18.2	0	0	1002	-0.02	5.3
11/01/2021 14:00	0.0	1.5	18.0	0	0	1001	-0.02	5.6
11/01/2021 15:00	0.0	1.5	18.1	0	0	1000	-0.03	6.0
11/01/2021 16:00	0.0	1.5	18.2	0	0	999	-0.02	6.3
11/01/2021 17:00	0.0	1.5	18.2	0	0	999	-0.02	6.5
11/01/2021 18:00	0.0	1.5	18.3	0	0	998	-0.02	6.6
11/01/2021 19:00	0.0	1.5	18.3	0	0	998	-0.02	6.8
11/01/2021 20:00	0.0	1.4	18.4	0	1	997	-0.02	6.9
11/01/2021 21:00	0.0	1.4	18.4	0	1	997	-0.03	6.8
11/01/2021 22:00	0.0	1.4	18.4	0	1	997	-0.03	6.7
11/01/2021 23:00	0.0	1.4	18.4	0	1	996	-0.02	6.5
12/01/2021 00:00	0.0	1.5	18.4	0	1	996	-0.03	6.4
12/01/2021 01:00	0.0	1.5	18.5	0	1	996	-0.02	6.3
12/01/2021 02:00	0.0	1.4	18.5	0	1	996	-0.02	6.3
12/01/2021 03:00	0.0	1.5	18.5	0	1	997	-0.02	6.2
12/01/2021 04:00	0.0	1.5	18.5	0	1	997	-0.03	6.2
12/01/2021 05:00	0.0	1.5	18.5	0	1	998	-0.03	5.8
12/01/2021 06:00	0.0	1.2	18.8	0	1	998	-0.02	5.5
12/01/2021 07:00	0.0	1.4	18.6	0	1	1000	-0.02	4.8
12/01/2021 08:00	0.0	1.4	18.5	0	1	1001	-0.03	4.0
12/01/2021 09:00	0.0	1.4	18.5	0	1	1002	-0.02	2.4
12/01/2021 10:00	0.0	1.3	18.4	0	1	1003	-0.01	1.6
12/01/2021 11:00	0.0	1.4	18.4	0	1	1004	-0.01	3.3

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS102
Instrument ID:	GS #0300050
Start Date:	22/12/2020 13:02
End Date:	12/01/2021 12:02

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	504

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	19.0	0	0	947	-0.01	-4.5
Maximum	1.4	1.3	20.7	1	12	1031	0.10	7.0
Range	1.4	1.2	1.7	0	12	84	0.11	11.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
22/12/2020 13:02	0.0	0.2	20.5	0	12	1003	0.00	6.4
22/12/2020 14:02	0.0	0.2	20.5	0	10	1003	0.00	6.4
22/12/2020 15:02	0.0	0.2	20.5	0	9	1002	0.00	5.9
22/12/2020 16:02	0.1	0.2	20.5	0	7	1003	0.00	5.1
22/12/2020 17:02	0.1	0.2	20.5	0	6	1003	0.00	4.6
22/12/2020 18:02	0.1	0.2	20.4	0	5	1002	0.00	3.8
22/12/2020 19:02	0.1	0.2	20.4	0	5	1002	0.00	3.7
22/12/2020 20:02	0.0	0.2	20.4	0	4	1001	0.00	3.5
22/12/2020 21:02	0.1	0.2	20.3	0	4	1002	0.00	3.8
22/12/2020 22:02	0.1	0.2	20.3	0	3	1002	-0.01	4.2
22/12/2020 23:02	0.1	0.2	20.3	0	3	1001	0.00	4.1
23/12/2020 00:02	0.0	0.2	20.3	0	2	1000	0.00	4.0
23/12/2020 01:02	0.1	0.2	20.3	0	2	999	0.00	4.2
23/12/2020 02:02	0.1	0.2	20.4	0	2	999	0.00	4.2
23/12/2020 03:02	0.1	0.2	20.4	0	2	998	0.00	4.2
23/12/2020 04:02	0.1	0.2	20.4	0	1	997	-0.01	4.2
23/12/2020 05:02	0.1	0.2	20.4	0	1	997	0.00	4.2
23/12/2020 06:02	0.1	0.2	20.3	0	1	996	0.00	4.2
23/12/2020 07:02	0.1	0.2	20.3	0	1	995	-0.01	4.1
23/12/2020 08:02	0.1	0.2	20.3	0	1	995	-0.01	4.2
23/12/2020 09:02	0.1	0.2	20.4	0	1	995	-0.01	4.3
23/12/2020 10:02	0.1	0.2	20.4	0	1	995	0.00	4.6
23/12/2020 11:02	0.1	0.2	20.4	0	1	995	-0.01	5.1
23/12/2020 12:02	0.1	0.2	20.4	0	1	994	0.00	5.5
23/12/2020 13:02	0.2	0.2	20.4	0	1	993	0.00	5.8
23/12/2020 14:02	0.2	0.2	20.4	0	1	994	-0.01	6.1
23/12/2020 15:02	0.2	0.2	20.5	0	1	994	0.00	5.9
23/12/2020 16:02	0.2	0.2	20.5	0	1	995	0.00	5.4
23/12/2020 17:02	0.2	0.2	20.5	0	1	997	0.00	5.3
23/12/2020 18:02	0.2	0.2	20.5	0	1	999	0.00	5.2
23/12/2020 19:02	0.2	0.2	20.5	0	1	1001	0.00	5.3
23/12/2020 20:02	0.2	0.2	20.5	0	1	1002	0.00	5.2
23/12/2020 21:02	0.2	0.2	20.5	0	1	1003	-0.01	5.3
23/12/2020 22:02	0.2	0.2	20.5	0	1	1005	0.00	5.5
23/12/2020 23:02	0.2	0.2	20.5	0	1	1007	-0.01	5.3
24/12/2020 00:02	0.2	0.2	20.5	0	1	1009	-0.01	4.6
24/12/2020 01:02	0.2	0.2	20.5	0	1	1010	0.00	3.8
24/12/2020 02:02	0.2	0.2	20.4	0	1	1011	0.00	3.0
24/12/2020 03:02	0.2	0.2	20.3	0	1	1013	0.00	2.5
24/12/2020 04:02	0.2	0.2	20.3	0	1	1014	0.00	1.6
24/12/2020 05:02	0.2	0.2	20.2	0	1	1014	0.00	1.0
24/12/2020 06:02	0.2	0.2	20.1	0	1	1015	0.01	0.5
24/12/2020 07:02	0.2	0.2	20.1	0	1	1016	0.01	0.1
24/12/2020 08:02	0.1	0.2	20.0	0	1	1017	0.03	0.0
24/12/2020 09:02	0.2	0.2	20.0	1	1	1019	0.01	0.3
24/12/2020 10:02	0.2	0.2	19.9	1	0	1020	0.02	0.6
24/12/2020 11:02	0.2	0.2	20.0	1	1	1021	0.03	2.4
24/12/2020 12:02	0.2	0.2	20.1	0	1	1022	0.03	3.8
24/12/2020 13:02	0.2	0.2	20.2	0	1	1022	0.03	3.6
24/12/2020 14:02	0.2	0.2	20.2	0	1	1023	0.01	4.0
24/12/2020 15:02	0.2	0.2	20.2	0	1	1024	0.00	3.3
24/12/2020 16:02	0.2	0.2	20.2	0	1	1026	0.01	2.3
24/12/2020 17:02	0.2	0.2	20.2	0	1	1026	0.01	1.3
24/12/2020 18:02	0.2	0.2	20.1	0	1	1027	0.03	0.7
24/12/2020 19:02	0.2	0.2	20.0	0	0	1028	0.02	0.4
24/12/2020 20:02	0.2	0.2	20.0	0	0	1029	0.02	0.1
24/12/2020 21:02	0.2	0.2	19.9	1	0	1029	0.02	-0.5
24/12/2020 22:02	0.2	0.2	19.9	1	0	1030	0.02	-0.8
24/12/2020 23:02	0.2	0.2	19.9	1	0	1029	0.03	-1.1
25/12/2020 00:02	0.2	0.2	19.8	1	0	1029	0.02	-1.4
25/12/2020 01:02	0.1	0.2	19.8	1	0	1030	0.02	-1.7
25/12/2020 02:02	0.2	0.2	19.7	1	0	1030	0.02	-1.9
25/12/2020 03:02	0.2	0.2	19.7	1	0	1030	0.02	-2.5
25/12/2020 04:02	0.2	0.2	19.7	1	0	1030	0.03	-2.7
25/12/2020 05:02	0.2	0.2	19.6	1	0	1031	0.01	-2.8
25/12/2020 06:02	0.1	0.2	19.6	1	0	1030	0.02	-2.9
25/12/2020 07:02	0.2	0.2	19.6	1	0	1030	0.01	-3.1
25/12/2020 08:02	0.2	0.2	19.6	1	0	1031	0.03	-3.3
25/12/2020 09:02	0.1	0.2	19.5	1	0	1030	0.01	-3.1

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
25/12/2020 10:02	0.2	0.2	19.5	1	0	1030	0.02	-2.7
25/12/2020 11:02	0.2	0.2	19.5	1	0	1030	0.02	-1.2
25/12/2020 12:02	0.2	0.2	19.6	1	0	1030	0.03	0.1
25/12/2020 13:02	0.2	0.2	19.7	1	1	1029	0.02	1.2
25/12/2020 14:02	0.2	0.2	19.7	1	1	1028	0.03	1.2
25/12/2020 15:02	0.2	0.2	19.8	1	1	1027	0.03	1.1
25/12/2020 16:02	0.2	0.2	19.8	1	1	1026	0.02	0.6
25/12/2020 17:02	0.4	0.2	19.8	1	1	1025	0.02	0.5
25/12/2020 18:02	0.3	0.2	19.8	1	1	1024	0.02	0.6
25/12/2020 19:02	0.3	0.2	19.8	1	1	1023	0.02	0.8
25/12/2020 20:02	0.3	0.2	19.8	1	1	1022	0.03	0.5
25/12/2020 21:02	0.2	0.2	19.8	1	1	1022	0.02	0.7
25/12/2020 22:02	0.3	0.2	19.8	1	1	1020	0.03	1.0
25/12/2020 23:02	0.3	0.2	19.9	1	1	1019	0.02	1.7
26/12/2020 00:02	0.4	0.2	19.9	1	1	1018	0.01	2.1
26/12/2020 01:02	0.3	0.2	19.9	1	1	1017	0.02	2.2
26/12/2020 02:02	0.3	0.2	20.0	1	1	1016	0.03	2.6
26/12/2020 03:02	0.3	0.2	20.0	0	1	1014	0.02	3.1
26/12/2020 04:02	0.5	0.2	20.1	0	1	1013	0.02	3.7
26/12/2020 05:02	0.4	0.2	20.1	0	1	1011	0.03	4.1
26/12/2020 06:02	0.5	0.2	20.2	0	1	1010	0.02	4.4
26/12/2020 07:02	0.4	0.2	20.2	0	1	1010	0.01	4.8
26/12/2020 08:02	0.5	0.2	20.3	0	1	1009	0.00	5.1
26/12/2020 09:02	0.5	0.2	20.3	0	1	1008	-0.01	5.0
26/12/2020 10:02	0.5	0.2	20.3	0	1	1006	0.00	5.1
26/12/2020 11:02	0.5	0.2	20.4	0	1	1003	0.00	5.5
26/12/2020 12:02	0.6	0.2	20.4	0	1	1001	0.00	6.0
26/12/2020 13:02	0.6	0.2	20.4	0	1	998	0.00	6.2
26/12/2020 14:02	0.5	0.2	20.5	0	1	995	0.00	6.5
26/12/2020 15:02	0.5	0.2	20.5	0	1	992	0.00	6.5
26/12/2020 16:02	0.6	0.2	20.5	0	1	990	0.00	6.6
26/12/2020 17:02	0.7	0.2	20.6	0	1	987	0.00	6.4
26/12/2020 18:02	0.6	0.2	20.6	0	0	983	-0.01	6.7
26/12/2020 19:02	0.7	0.2	20.6	0	0	979	-0.01	6.4
26/12/2020 20:02	0.7	0.2	20.6	0	0	976	0.00	6.4
26/12/2020 21:02	0.5	0.2	20.6	0	1	971	0.00	6.3
26/12/2020 22:02	0.5	0.2	20.6	0	1	968	0.00	6.5
26/12/2020 23:02	0.7	0.2	20.7	0	0	964	-0.01	6.6
27/12/2020 00:02	0.6	0.2	20.6	0	0	960	0.00	6.6
27/12/2020 01:02	0.7	0.2	20.6	0	1	957	0.00	6.5
27/12/2020 02:02	0.6	0.2	20.6	0	1	955	0.00	6.4
27/12/2020 03:02	0.5	0.2	20.6	0	1	953	-0.01	5.7
27/12/2020 04:02	0.6	0.2	20.6	0	0	952	-0.01	5.3
27/12/2020 05:02	0.8	0.2	20.6	0	0	952	-0.01	4.4
27/12/2020 06:02	0.6	0.2	20.5	0	0	952	0.00	3.4
27/12/2020 07:02	0.6	0.2	20.4	0	0	952	0.00	2.5
27/12/2020 08:02	0.5	0.2	20.3	0	0	952	-0.01	2.3
27/12/2020 09:02	0.5	0.1	20.3	0	0	952	0.00	2.4
27/12/2020 10:02	0.8	0.1	20.3	0	0	952	0.00	2.5
27/12/2020 11:02	0.6	0.1	20.3	0	0	951	0.02	3.3
27/12/2020 12:02	0.7	0.1	20.3	0	0	949	0.00	4.3
27/12/2020 13:02	0.6	0.1	20.4	0	0	949	0.00	4.7
27/12/2020 14:02	0.7	0.1	20.4	0	1	948	0.00	4.6
27/12/2020 15:02	0.7	0.1	20.4	0	0	948	0.00	5.4
27/12/2020 16:02	0.7	0.1	20.4	0	1	948	-0.01	4.1
27/12/2020 17:02	0.7	0.1	20.4	0	0	947	0.00	3.1
27/12/2020 18:02	0.5	0.1	20.4	0	0	948	0.00	2.2
27/12/2020 19:02	0.6	0.1	20.3	0	0	948	0.01	1.8
27/12/2020 20:02	0.7	0.1	20.3	0	1	948	0.02	2.4
27/12/2020 21:02	0.6	0.1	20.2	0	0	948	0.02	2.3
27/12/2020 22:02	0.7	0.1	20.2	0	0	948	0.03	2.1
27/12/2020 23:02	0.6	0.1	20.2	0	0	948	0.02	1.6
28/12/2020 00:02	0.6	0.1	20.2	0	1	948	0.02	1.5
28/12/2020 01:02	0.6	0.1	20.2	0	0	947	0.02	1.0
28/12/2020 02:02	0.6	0.1	20.1	1	0	947	0.03	0.8
28/12/2020 03:02	0.5	0.1	20.1	0	0	947	0.03	1.0
28/12/2020 04:02	0.6	0.1	20.1	1	0	947	0.03	1.2
28/12/2020 05:02	0.8	0.1	20.1	1	1	948	0.02	1.5
28/12/2020 06:02	0.5	0.1	20.1	0	0	949	0.02	1.6
28/12/2020 07:02	0.6	0.1	20.1	0	1	951	0.03	1.5
28/12/2020 08:02	0.7	0.1	20.1	1	0	952	0.02	1.5
28/12/2020 09:02	0.6	0.1	20.1	0	1	954	0.01	1.6
28/12/2020 10:02	0.6	0.1	20.1	1	1	955	0.03	1.9
28/12/2020 11:02	0.6	0.1	20.1	1	1	956	0.02	2.3
28/12/2020 12:02	0.7	0.1	20.1	0	1	957	0.02	2.8
28/12/2020 13:02	0.7	0.1	20.2	0	1	958	0.02	3.6
28/12/2020 14:02	0.6	0.0	20.2	0	1	959	0.02	3.5
28/12/2020 15:02	0.7	0.1	20.2	0	1	960	0.02	3.3
28/12/2020 16:02	0.8	0.1	20.2	0	1	961	0.02	2.8
28/12/2020 17:02	0.9	0.1	20.2	0	1	961	0.01	2.4
28/12/2020 18:02	0.7	0.1	20.2	0	1	962	0.03	1.4
28/12/2020 19:02	0.7	0.1	20.1	0	1	963	0.02	1.4
28/12/2020 20:02	0.7	0.1	20.1	0	1	963	0.03	1.4
28/12/2020 21:02	0.6	0.1	20.1	0	1	964	0.03	1.7
28/12/2020 22:02	0.7	0.1	20.1	0	1	965	0.01	1.7
28/12/2020 23:02	0.8	0.1	20.1	1	1	966	0.01	1.6
29/12/2020 00:02	0.6	0.1	20.1	1	1	966	0.03	0.8
29/12/2020 01:02	0.7	0.1	20.1	1	1	967	0.02	0.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
29/12/2020 02:02	0.6	0.1	20.0	1	1	967	0.01	0.8
29/12/2020 03:02	0.7	0.1	20.0	1	1	968	0.02	0.4
29/12/2020 04:02	0.7	0.1	20.0	1	1	969	0.03	-0.5
29/12/2020 05:02	0.7	0.1	19.9	1	1	970	0.02	-0.6
29/12/2020 06:02	0.7	0.1	19.9	1	1	971	0.02	-0.3
29/12/2020 07:02	0.7	0.1	19.9	1	1	971	0.01	-0.1
29/12/2020 08:02	0.8	0.1	19.9	1	0	973	0.02	0.2
29/12/2020 09:02	0.8	0.1	19.9	1	1	974	0.00	0.6
29/12/2020 10:02	0.7	0.1	19.9	1	1	975	0.01	1.1
29/12/2020 11:02	0.6	0.1	20.0	1	1	977	0.02	1.8
29/12/2020 12:02	0.7	0.1	20.0	1	1	978	0.03	2.9
29/12/2020 13:02	0.8	0.1	20.1	0	0	979	0.01	3.5
29/12/2020 14:02	0.7	0.1	20.2	1	1	980	0.03	3.2
29/12/2020 15:02	0.8	0.1	20.2	0	0	981	0.03	2.2
29/12/2020 16:02	0.8	0.1	20.2	0	1	983	0.03	1.3
29/12/2020 17:02	0.7	0.1	20.1	0	0	984	0.01	0.6
29/12/2020 18:02	0.8	0.1	20.0	1	1	984	0.03	0.0
29/12/2020 19:02	0.9	0.1	20.0	1	0	985	0.03	-0.8
29/12/2020 20:02	0.8	0.1	19.9	1	1	986	0.02	-1.3
29/12/2020 21:02	0.7	0.1	19.8	1	1	986	0.03	-1.7
29/12/2020 22:02	0.8	0.1	19.8	1	0	987	0.02	-2.0
29/12/2020 23:02	0.7	0.1	19.8	1	1	988	0.02	-2.4
30/12/2020 00:02	0.9	0.1	19.7	1	0	988	0.02	-2.4
30/12/2020 01:02	0.7	0.1	19.7	1	1	988	0.02	-1.6
30/12/2020 02:02	0.8	0.1	19.7	1	1	988	0.01	-1.3
30/12/2020 03:02	0.6	0.1	19.7	1	1	989	0.02	-1.1
30/12/2020 04:02	0.8	0.1	19.7	1	1	989	0.02	-0.9
30/12/2020 05:02	0.7	0.1	19.7	1	0	989	0.02	-0.6
30/12/2020 06:02	0.7	0.1	19.8	1	1	989	0.03	-0.4
30/12/2020 07:02	1.0	0.1	19.8	1	1	989	0.02	-0.3
30/12/2020 08:02	0.8	0.1	19.8	1	1	990	0.03	-0.3
30/12/2020 09:02	0.8	0.1	19.8	1	1	991	0.03	-0.1
30/12/2020 10:02	1.0	0.1	19.8	1	1	991	0.03	0.3
30/12/2020 11:02	0.8	0.1	19.9	1	1	991	0.03	1.0
30/12/2020 12:02	0.8	0.1	19.9	1	1	991	0.02	1.3
30/12/2020 13:02	0.9	0.1	19.9	1	1	991	0.02	1.8
30/12/2020 14:02	1.0	0.1	20.0	1	1	991	0.03	2.3
30/12/2020 15:02	0.9	0.1	20.0	1	1	991	0.03	2.0
30/12/2020 16:02	0.9	0.1	20.0	1	1	992	0.02	1.5
30/12/2020 17:02	1.0	0.1	20.0	1	1	992	0.01	1.4
30/12/2020 18:02	0.9	0.1	20.0	1	1	992	0.03	1.2
30/12/2020 19:02	0.9	0.1	20.0	1	1	992	0.02	1.0
30/12/2020 20:02	0.9	0.1	20.0	1	1	993	0.03	0.7
30/12/2020 21:02	0.8	0.1	20.0	1	1	993	0.03	0.5
30/12/2020 22:02	0.8	0.1	19.9	1	1	993	0.02	0.1
30/12/2020 23:02	0.8	0.1	19.9	1	1	994	0.02	-0.1
31/12/2020 00:02	0.8	0.1	19.9	1	1	993	0.03	-0.2
31/12/2020 01:02	1.0	0.1	19.9	1	1	993	0.01	-0.2
31/12/2020 02:02	0.9	0.1	19.8	1	1	993	0.02	-0.1
31/12/2020 03:02	0.9	0.1	19.8	1	1	993	0.02	-0.1
31/12/2020 04:02	0.9	0.1	19.8	1	1	993	0.03	0.1
31/12/2020 05:02	0.7	0.1	19.8	1	1	992	0.03	0.1
31/12/2020 06:02	1.0	0.1	19.9	1	1	993	0.02	0.2
31/12/2020 07:02	0.9	0.1	19.9	1	1	993	0.02	0.3
31/12/2020 08:02	0.9	0.1	19.9	1	1	994	0.03	0.2
31/12/2020 09:02	0.9	0.1	19.9	1	1	994	0.03	0.3
31/12/2020 10:02	0.8	0.1	19.9	1	1	994	0.02	0.3
31/12/2020 11:02	1.0	0.1	19.9	1	1	995	0.02	0.4
31/12/2020 12:02	1.1	0.1	19.9	1	1	995	0.02	0.9
31/12/2020 13:02	1.0	0.1	19.9	1	1	994	0.03	2.0
31/12/2020 14:02	0.8	0.1	20.0	1	1	995	0.02	2.2
31/12/2020 15:02	1.0	0.1	20.0	1	1	995	0.01	2.0
31/12/2020 16:02	0.9	0.1	20.0	1	1	996	0.03	1.5
31/12/2020 17:02	1.1	0.1	20.0	1	1	997	0.02	1.0
31/12/2020 18:02	0.9	0.1	20.0	1	1	997	0.02	1.0
31/12/2020 19:02	1.0	0.1	20.0	1	1	998	0.02	0.7
31/12/2020 20:02	0.8	0.1	20.0	1	1	999	0.03	0.4
31/12/2020 21:02	1.0	0.1	19.9	1	1	999	0.01	0.3
31/12/2020 22:02	0.9	0.1	19.9	1	1	1000	0.02	0.1
31/12/2020 23:02	1.0	0.1	19.9	1	1	1001	0.02	0.2
01/01/2021 00:02	1.0	0.1	19.9	1	1	1001	0.03	0.3
01/01/2021 01:02	1.0	0.1	19.9	1	1	1001	0.03	0.3
01/01/2021 02:02	0.9	0.1	19.9	1	1	1002	0.03	0.3
01/01/2021 03:02	0.9	0.1	19.9	1	1	1002	0.02	0.3
01/01/2021 04:02	0.9	0.1	19.9	1	1	1002	0.03	0.3
01/01/2021 05:02	1.3	0.1	19.9	1	1	1002	0.02	0.4
01/01/2021 06:02	1.0	0.2	19.9	1	1	1003	0.02	0.4
01/01/2021 07:02	1.0	0.1	19.9	1	1	1003	0.02	0.3
01/01/2021 08:02	0.9	0.2	19.9	1	1	1004	0.02	-0.4
01/01/2021 09:02	1.1	0.2	19.8	1	1	1005	0.03	-0.5
01/01/2021 10:02	0.9	0.2	19.8	1	1	1005	0.03	0.1
01/01/2021 11:02	1.0	0.2	19.9	1	1	1006	0.02	1.9
01/01/2021 12:02	1.1	0.2	19.9	1	1	1005	0.02	3.0
01/01/2021 13:02	1.3	0.2	20.0	1	1	1005	0.02	3.6
01/01/2021 14:02	1.2	0.2	20.1	0	1	1006	0.03	3.8
01/01/2021 15:02	1.2	0.2	20.2	0	1	1006	0.02	3.3
01/01/2021 16:02	0.9	0.2	20.2	0	1	1007	0.03	2.3
01/01/2021 17:02	1.0	0.2	20.1	0	1	1007	0.03	1.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
01/01/2021 18:02	1.1	0.2	20.0	0	1	1008	0.02	-0.1
01/01/2021 19:02	0.9	0.2	19.9	1	1	1009	0.00	-0.8
01/01/2021 20:02	1.0	0.3	19.8	1	0	1009	0.03	-1.3
01/01/2021 21:02	1.0	0.3	19.7	1	0	1010	0.03	-1.5
01/01/2021 22:02	0.9	0.4	19.7	1	0	1010	0.03	-1.9
01/01/2021 23:02	0.9	0.4	19.6	1	0	1011	0.01	-2.4
02/01/2021 00:02	0.8	0.5	19.5	1	0	1011	0.01	-2.4
02/01/2021 01:02	1.0	0.5	19.5	1	0	1011	0.01	-2.8
02/01/2021 02:02	0.9	0.5	19.4	1	0	1011	0.02	-2.7
02/01/2021 03:02	1.1	0.6	19.4	1	0	1011	0.03	-3.2
02/01/2021 04:02	1.0	0.6	19.3	1	0	1011	0.02	-3.5
02/01/2021 05:02	1.1	0.6	19.3	1	0	1011	0.02	-3.7
02/01/2021 06:02	0.9	0.6	19.3	1	0	1011	0.02	-4.0
02/01/2021 07:02	1.0	0.7	19.2	1	0	1010	0.02	-4.1
02/01/2021 08:02	1.0	0.7	19.2	1	0	1011	0.02	-4.2
02/01/2021 09:02	1.0	0.7	19.2	1	0	1011	0.00	-3.2
02/01/2021 10:02	0.9	0.7	19.2	1	0	1011	0.02	-2.0
02/01/2021 11:02	0.9	0.8	19.2	1	0	1011	0.02	-1.5
02/01/2021 12:02	1.0	0.8	19.2	1	0	1011	0.02	-0.7
02/01/2021 13:02	1.0	0.8	19.3	1	0	1010	0.01	0.9
02/01/2021 14:02	0.9	0.8	19.4	1	0	1010	0.02	1.7
02/01/2021 15:02	1.2	0.8	19.4	1	0	1011	0.02	0.6
02/01/2021 16:02	1.1	0.8	19.5	1	0	1011	0.02	0.5
02/01/2021 17:02	1.3	0.9	19.4	1	0	1012	0.01	0.4
02/01/2021 18:02	1.1	0.9	19.4	1	0	1012	0.03	0.2
02/01/2021 19:02	1.0	0.9	19.4	1	0	1012	0.02	-0.4
02/01/2021 20:02	1.0	0.9	19.4	1	0	1013	0.02	-0.7
02/01/2021 21:02	1.2	0.9	19.4	1	0	1013	0.02	-0.7
02/01/2021 22:02	1.1	0.9	19.3	1	0	1014	0.01	-0.7
02/01/2021 23:02	1.0	0.9	19.3	1	0	1014	0.01	-0.4
03/01/2021 00:02	1.1	0.9	19.3	1	0	1014	0.03	-0.7
03/01/2021 01:02	1.1	0.9	19.3	1	0	1014	0.02	-0.6
03/01/2021 02:02	1.0	1.0	19.3	1	0	1014	0.02	-0.4
03/01/2021 03:02	1.0	0.9	19.3	1	0	1014	0.03	-0.3
03/01/2021 04:02	1.1	0.9	19.3	1	0	1014	0.02	-0.4
03/01/2021 05:02	1.4	1.0	19.3	1	0	1014	0.01	-0.7
03/01/2021 06:02	1.1	1.0	19.3	1	0	1015	0.02	-0.6
03/01/2021 07:02	1.0	1.0	19.3	1	0	1015	0.03	-0.6
03/01/2021 08:02	1.3	1.0	19.3	1	0	1015	0.03	-0.7
03/01/2021 09:02	1.0	1.0	19.3	1	0	1016	0.00	-0.5
03/01/2021 10:02	1.1	1.0	19.3	1	0	1016	0.00	-0.1
03/01/2021 11:02	1.0	1.0	19.4	1	0	1016	0.03	2.3
03/01/2021 12:02	1.0	1.1	19.5	1	0	1017	0.02	3.7
03/01/2021 13:02	1.2	1.0	19.6	1	0	1016	0.01	4.2
03/01/2021 14:02	1.0	1.0	19.7	0	0	1017	0.01	3.8
03/01/2021 15:02	1.0	1.0	19.7	0	0	1017	0.01	3.6
03/01/2021 16:02	1.1	1.0	19.7	0	0	1017	0.02	2.2
03/01/2021 17:02	1.0	1.1	19.7	0	0	1018	0.03	1.4
03/01/2021 18:02	1.1	1.1	19.6	1	0	1018	0.03	1.2
03/01/2021 19:02	1.2	1.1	19.6	1	0	1019	0.02	0.7
03/01/2021 20:02	1.2	1.1	19.5	1	0	1020	0.01	0.4
03/01/2021 21:02	1.0	1.1	19.4	1	0	1020	0.02	-0.2
03/01/2021 22:02	1.3	1.1	19.4	1	0	1021	0.01	-0.4
03/01/2021 23:02	1.0	1.1	19.4	1	0	1021	0.02	-0.9
04/01/2021 00:02	1.1	1.1	19.3	1	0	1021	0.03	0.0
04/01/2021 01:02	1.1	1.1	19.3	1	0	1021	0.02	-0.2
04/01/2021 02:02	1.0	1.1	19.3	1	0	1021	0.03	-0.1
04/01/2021 03:02	1.0	1.1	19.3	1	0	1021	0.03	-0.7
04/01/2021 04:02	1.0	1.1	19.3	1	0	1021	0.02	-1.3
04/01/2021 05:02	0.9	1.1	19.3	1	0	1021	0.01	-1.1
04/01/2021 06:02	1.0	1.1	19.3	1	0	1021	0.00	-0.6
04/01/2021 07:02	1.3	1.1	19.3	1	0	1022	0.03	-0.2
04/01/2021 08:02	1.0	1.1	19.3	1	0	1022	0.02	-0.4
04/01/2021 09:02	1.2	1.1	19.3	1	0	1022	0.01	-0.2
04/01/2021 10:02	1.4	1.1	19.3	1	0	1023	0.02	0.3
04/01/2021 11:02	1.1	1.1	19.4	1	0	1023	0.03	1.9
04/01/2021 12:02	1.1	1.1	19.4	1	0	1022	0.03	2.4
04/01/2021 13:02	1.2	1.1	19.5	1	0	1022	0.03	3.2
04/01/2021 14:02	1.0	1.1	19.6	0	0	1021	0.01	3.7
04/01/2021 15:02	1.2	1.1	19.6	0	0	1022	0.02	3.1
04/01/2021 16:02	1.0	1.1	19.6	0	0	1022	0.03	2.2
04/01/2021 17:02	1.1	1.1	19.6	0	0	1022	0.01	1.6
04/01/2021 18:02	1.0	1.1	19.6	1	0	1022	0.02	1.2
04/01/2021 19:02	1.1	1.1	19.5	1	0	1023	0.02	1.4
04/01/2021 20:02	0.9	1.1	19.5	1	0	1022	0.03	1.0
04/01/2021 21:02	0.9	1.1	19.5	1	0	1023	0.03	1.0
04/01/2021 22:02	1.0	1.1	19.5	1	0	1023	0.01	1.2
04/01/2021 23:02	1.1	1.2	19.5	1	0	1023	0.01	1.2
05/01/2021 00:02	1.1	1.1	19.5	1	0	1022	0.02	1.2
05/01/2021 01:02	1.3	1.1	19.5	1	0	1022	0.03	1.0
05/01/2021 02:02	1.0	1.2	19.5	1	0	1022	0.02	0.5
05/01/2021 03:02	1.1	1.1	19.4	1	0	1022	0.03	0.4
05/01/2021 04:02	1.3	1.1	19.4	1	0	1022	0.03	0.1
05/01/2021 05:02	1.0	1.1	19.4	1	0	1022	0.03	0.2
05/01/2021 06:02	1.1	1.2	19.4	1	0	1022	0.02	0.5
05/01/2021 07:02	1.1	1.1	19.4	1	0	1022	0.03	0.5
05/01/2021 08:02	1.4	1.1	19.4	1	0	1022	0.02	0.5
05/01/2021 09:02	1.0	1.2	19.4	1	0	1023	0.03	0.7

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
05/01/2021 10:02	1.2	1.1	19.4	1	0	1023	0.03	1.2
05/01/2021 11:02	1.2	1.1	19.4	1	0	1023	0.02	1.9
05/01/2021 12:02	1.2	1.1	19.5	1	0	1022	0.00	2.4
05/01/2021 13:02	0.9	1.1	19.6	0	0	1021	0.00	3.9
05/01/2021 14:02	1.2	1.1	19.7	0	0	1021	0.00	4.7
05/01/2021 15:02	1.2	1.1	19.7	0	0	1021	0.03	3.5
05/01/2021 16:02	1.0	1.1	19.7	0	0	1022	0.01	2.2
05/01/2021 17:02	1.1	1.2	19.7	0	0	1022	0.02	1.8
05/01/2021 18:02	1.0	1.1	19.6	0	0	1022	0.02	1.2
05/01/2021 19:02	1.0	1.1	19.6	1	0	1022	0.01	1.3
05/01/2021 20:02	1.1	1.1	19.6	1	0	1022	0.02	1.3
05/01/2021 21:02	1.0	1.1	19.5	1	0	1022	0.02	1.3
05/01/2021 22:02	1.1	1.1	19.5	0	0	1022	0.02	0.3
05/01/2021 23:02	1.2	1.1	19.5	1	0	1022	0.02	-0.3
06/01/2021 00:02	1.1	1.1	19.4	1	0	1021	0.03	-0.5
06/01/2021 01:02	1.1	1.1	19.4	1	0	1021	0.02	-0.8
06/01/2021 02:02	1.1	1.1	19.3	1	0	1021	0.03	-1.3
06/01/2021 03:02	1.1	1.1	19.3	1	0	1020	0.02	-1.7
06/01/2021 04:02	1.3	1.1	19.3	1	0	1020	0.01	-0.8
06/01/2021 05:02	1.0	1.2	19.3	1	0	1019	0.03	-0.3
06/01/2021 06:02	1.0	1.1	19.3	1	0	1019	0.02	-0.6
06/01/2021 07:02	1.3	1.1	19.3	1	0	1019	0.02	-1.1
06/01/2021 08:02	1.1	1.1	19.3	1	0	1020	0.02	-1.5
06/01/2021 09:02	1.2	1.1	19.2	1	0	1020	0.02	-1.6
06/01/2021 10:02	1.2	1.1	19.2	1	0	1019	0.02	-0.7
06/01/2021 11:02	1.1	1.1	19.3	1	0	1019	0.03	-0.2
06/01/2021 12:02	0.9	1.1	19.3	1	0	1018	0.02	1.1
06/01/2021 13:02	0.9	1.1	19.4	1	0	1017	0.03	2.5
06/01/2021 14:02	1.1	1.1	19.5	1	0	1017	0.01	2.6
06/01/2021 15:02	1.1	1.1	19.6	0	0	1017	0.01	2.1
06/01/2021 16:02	0.9	1.1	19.6	1	0	1017	0.03	1.0
06/01/2021 17:02	1.0	1.2	19.5	1	0	1018	0.03	-0.3
06/01/2021 18:02	1.0	1.2	19.4	1	0	1018	0.02	-1.3
06/01/2021 19:02	1.1	1.2	19.4	1	0	1017	0.03	-2.0
06/01/2021 20:02	0.9	1.1	19.3	1	0	1017	0.00	-2.4
06/01/2021 21:02	1.2	1.2	19.2	1	0	1017	0.01	-2.9
06/01/2021 22:02	1.1	1.2	19.2	1	0	1017	0.02	-3.2
06/01/2021 23:02	1.0	1.2	19.1	1	0	1017	0.01	-3.5
07/01/2021 00:02	0.9	1.2	19.1	1	0	1016	0.01	-3.8
07/01/2021 01:02	1.0	1.2	19.1	1	0	1016	0.01	-4.1
07/01/2021 02:02	1.1	1.1	19.0	1	0	1015	0.03	-4.3
07/01/2021 03:02	1.2	1.2	19.0	1	0	1015	0.02	-4.5
07/01/2021 04:02	1.1	1.1	19.0	1	0	1015	0.01	-3.2
07/01/2021 05:02	1.1	1.2	19.0	1	0	1014	0.03	-2.4
07/01/2021 06:02	1.1	1.1	19.0	1	0	1014	0.02	-2.0
07/01/2021 07:02	1.1	1.2	19.1	1	0	1013	0.02	-1.6
07/01/2021 08:02	1.1	1.1	19.1	1	0	1014	0.02	-1.4
07/01/2021 09:02	1.2	1.2	19.1	1	0	1014	0.03	-1.2
07/01/2021 10:02	0.6	1.2	19.1	1	0	1014	0.03	-0.7
07/01/2021 11:02	1.0	1.2	19.2	1	0	1013	0.02	-0.1
07/01/2021 12:02	1.3	1.2	19.2	1	0	1012	0.02	0.5
07/01/2021 13:02	1.2	1.2	19.3	1	0	1011	0.02	0.8
07/01/2021 14:02	1.0	1.2	19.3	1	0	1011	0.02	1.0
07/01/2021 15:02	1.1	1.2	19.3	1	0	1011	0.02	0.4
07/01/2021 16:02	1.1	1.2	19.3	1	0	1011	0.02	0.1
07/01/2021 17:02	1.2	1.2	19.3	1	0	1011	0.02	0.1
07/01/2021 18:02	1.3	1.2	19.3	1	0	1010	0.02	0.1
07/01/2021 19:02	1.3	1.2	19.3	1	0	1010	0.03	0.1
07/01/2021 20:02	1.2	1.2	19.3	1	0	1011	0.03	0.2
07/01/2021 21:02	1.1	1.1	19.3	1	0	1011	0.03	0.3
07/01/2021 22:02	1.1	1.2	19.3	1	0	1010	0.02	0.3
07/01/2021 23:02	1.3	1.2	19.3	1	0	1011	0.03	0.1
08/01/2021 00:02	1.3	1.2	19.3	1	0	1010	0.02	0.1
08/01/2021 01:02	1.1	1.2	19.3	1	0	1010	0.03	0.1
08/01/2021 02:02	1.2	1.2	19.3	1	0	1010	0.03	0.2
08/01/2021 03:02	1.4	1.2	19.3	1	0	1010	0.03	0.3
08/01/2021 04:02	1.1	1.2	19.3	1	0	1010	0.01	0.3
08/01/2021 05:02	1.0	1.2	19.3	1	0	1010	0.03	0.3
08/01/2021 06:02	1.2	1.1	19.3	1	0	1011	0.03	0.3
08/01/2021 07:02	1.3	1.2	19.4	1	0	1011	0.02	0.4
08/01/2021 08:02	0.8	1.2	19.3	1	0	1012	0.03	0.3
08/01/2021 09:02	1.0	1.2	19.3	1	0	1013	0.03	0.6
08/01/2021 10:02	1.3	1.2	19.3	1	0	1013	0.02	1.2
08/01/2021 11:02	0.9	1.2	19.4	1	0	1014	0.02	1.7
08/01/2021 12:02	1.0	1.2	19.4	1	0	1014	0.03	2.4
08/01/2021 13:02	1.2	1.1	19.5	1	0	1014	0.03	2.8
08/01/2021 14:02	1.1	1.2	19.5	1	0	1014	0.02	2.9
08/01/2021 15:02	1.3	1.2	19.5	1	0	1015	0.02	2.6
08/01/2021 16:02	1.0	1.1	19.6	1	0	1016	0.02	3.1
08/01/2021 17:02	1.2	1.2	19.5	1	0	1017	0.02	1.9
08/01/2021 18:02	0.9	1.2	19.5	0	0	1018	0.02	1.1
08/01/2021 19:02	1.0	1.2	19.5	1	0	1019	0.02	0.9
08/01/2021 20:02	0.8	1.2	19.4	1	0	1019	0.02	1.0
08/01/2021 21:02	0.9	1.2	19.4	1	0	1020	0.03	1.1
08/01/2021 22:02	1.1	1.2	19.5	1	0	1020	0.02	0.6
08/01/2021 23:02	1.2	1.2	19.4	1	0	1021	0.03	0.7
09/01/2021 00:02	1.0	1.2	19.4	1	0	1021	0.03	0.4
09/01/2021 01:02	0.9	1.2	19.4	1	0	1021	0.03	0.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
09/01/2021 02:02	1.0	1.2	19.4	1	0	1021	0.03	0.3
09/01/2021 03:02	1.1	1.2	19.3	1	0	1022	0.02	0.4
09/01/2021 04:02	1.0	1.3	19.3	1	0	1022	0.02	-0.3
09/01/2021 05:02	1.1	1.2	19.3	1	0	1023	0.02	-1.1
09/01/2021 06:02	1.0	1.2	19.2	1	0	1023	0.03	-1.3
09/01/2021 07:02	1.2	1.3	19.2	1	0	1023	0.02	-1.4
09/01/2021 08:02	1.0	1.3	19.2	1	0	1024	0.02	-1.6
09/01/2021 09:02	1.0	1.3	19.2	1	0	1024	0.02	-2.0
09/01/2021 10:02	1.0	1.2	19.1	1	0	1024	0.02	-0.6
09/01/2021 11:02	1.0	1.3	19.2	1	0	1024	0.02	0.2
09/01/2021 12:02	1.0	1.2	19.2	1	0	1024	0.03	1.0
09/01/2021 13:02	1.0	1.3	19.3	1	0	1023	0.03	1.8
09/01/2021 14:02	0.9	1.3	19.3	1	0	1023	0.02	1.5
09/01/2021 15:02	1.0	1.3	19.4	1	0	1023	0.01	1.9
09/01/2021 16:02	1.2	1.2	19.4	1	0	1023	0.03	0.8
09/01/2021 17:02	0.8	1.2	19.4	1	0	1023	0.03	0.8
09/01/2021 18:02	1.1	1.2	19.4	1	0	1023	0.03	0.6
09/01/2021 19:02	0.8	1.3	19.4	1	0	1023	0.03	0.4
09/01/2021 20:02	1.2	1.2	19.3	1	0	1023	0.03	-0.3
09/01/2021 21:02	1.0	1.3	19.3	1	0	1024	0.01	-0.9
09/01/2021 22:02	0.9	1.2	19.3	1	0	1024	0.03	-0.6
09/01/2021 23:02	0.9	1.3	19.2	1	0	1023	0.02	-0.6
10/01/2021 00:02	1.0	1.2	19.2	1	0	1023	0.02	-0.2
10/01/2021 01:02	1.1	1.3	19.2	1	0	1023	0.03	0.0
10/01/2021 02:02	0.9	1.2	19.2	1	0	1023	0.02	0.1
10/01/2021 03:02	1.0	1.3	19.3	1	0	1022	0.02	0.3
10/01/2021 04:02	0.8	1.2	19.3	1	0	1022	0.02	0.4
10/01/2021 05:02	1.2	1.3	19.3	1	0	1022	0.03	0.5
10/01/2021 06:02	1.0	1.3	19.3	1	0	1022	0.03	0.7
10/01/2021 07:02	0.9	1.3	19.3	1	0	1021	0.03	0.9
10/01/2021 08:02	1.1	1.2	19.3	1	0	1021	0.03	0.9
10/01/2021 09:02	0.9	1.3	19.3	1	0	1021	0.03	1.2
10/01/2021 10:02	0.7	1.3	19.3	1	0	1022	0.02	1.6
10/01/2021 11:02	1.0	1.3	19.4	1	0	1022	0.03	2.1
10/01/2021 12:02	0.9	1.3	19.4	1	0	1021	0.02	2.4
10/01/2021 13:02	0.9	1.2	19.4	1	0	1020	0.03	2.9
10/01/2021 14:02	0.6	1.3	19.5	0	0	1019	0.01	3.4
10/01/2021 15:02	1.0	1.2	19.5	0	0	1019	0.02	3.8
10/01/2021 16:02	0.8	1.2	19.6	0	0	1018	0.03	3.7
10/01/2021 17:02	0.9	1.3	19.6	0	0	1018	0.01	3.8
10/01/2021 18:02	0.5	1.3	19.7	0	0	1018	0.02	3.9
10/01/2021 19:02	0.7	1.3	19.7	0	0	1017	0.03	4.0
10/01/2021 20:02	0.6	1.3	19.7	0	0	1017	0.02	3.8
10/01/2021 21:02	0.7	1.2	19.7	0	0	1017	0.02	3.8
10/01/2021 22:02	0.5	1.2	19.7	0	0	1016	0.02	3.9
10/01/2021 23:02	0.9	1.3	19.7	0	0	1016	0.02	3.9
11/01/2021 00:02	0.8	1.2	19.7	0	0	1015	0.02	3.9
11/01/2021 01:02	0.8	1.2	19.7	0	0	1014	0.01	3.8
11/01/2021 02:02	0.4	1.2	19.7	0	0	1013	0.02	4.0
11/01/2021 03:02	0.6	1.2	19.7	0	0	1012	0.01	4.1
11/01/2021 04:02	0.6	1.2	19.8	0	0	1011	0.01	4.0
11/01/2021 05:02	0.6	1.2	19.8	0	0	1011	0.01	4.2
11/01/2021 06:02	0.6	1.2	19.8	0	0	1010	0.01	4.3
11/01/2021 07:02	0.6	1.2	19.8	0	0	1009	0.00	4.5
11/01/2021 08:02	0.7	1.2	19.8	0	0	1009	0.00	4.5
11/01/2021 09:02	0.6	1.2	19.8	0	0	1009	0.01	4.4
11/01/2021 10:02	0.7	1.2	19.8	0	0	1008	0.00	4.6
11/01/2021 11:02	0.9	1.2	19.9	0	0	1007	0.00	4.7
11/01/2021 12:02	0.6	1.2	19.9	0	0	1006	0.00	5.0
11/01/2021 13:02	0.6	1.2	19.9	0	0	1005	-0.01	5.4
11/01/2021 14:02	0.6	1.2	19.9	0	0	1003	-0.01	5.9
11/01/2021 15:02	0.6	1.2	20.0	0	0	1002	-0.01	6.1
11/01/2021 16:02	0.6	1.2	20.0	0	0	1002	0.00	6.4
11/01/2021 17:02	0.5	1.2	20.1	0	0	1001	0.00	6.6
11/01/2021 18:02	0.5	1.2	20.1	0	0	1000	0.00	6.7
11/01/2021 19:02	0.3	1.1	20.1	0	0	1000	0.00	6.9
11/01/2021 20:02	0.4	1.1	20.2	0	0	1000	0.00	7.0
11/01/2021 21:02	0.5	1.2	20.2	0	0	999	0.00	6.9
11/01/2021 22:02	0.2	1.2	20.2	0	0	999	0.00	6.7
11/01/2021 23:02	0.4	1.2	20.2	0	0	998	0.00	6.5
12/01/2021 00:02	0.4	1.1	20.2	0	0	998	-0.01	6.4
12/01/2021 01:02	0.3	1.2	20.2	0	0	998	0.00	6.4
12/01/2021 02:02	0.5	1.2	20.2	0	0	998	0.00	6.4
12/01/2021 03:02	0.4	1.1	20.1	0	0	999	0.00	6.3
12/01/2021 04:02	0.3	1.2	20.1	0	0	1000	-0.01	6.3
12/01/2021 05:02	0.4	1.1	20.1	0	0	1001	0.00	5.8
12/01/2021 06:02	0.5	1.2	20.1	0	0	1002	-0.01	5.5
12/01/2021 07:02	0.2	1.2	20.1	0	0	1004	0.00	4.6
12/01/2021 08:02	0.5	1.2	20.0	0	0	1005	0.00	3.6
12/01/2021 09:02	0.5	1.2	19.9	0	0	1007	0.00	1.9
12/01/2021 10:02	0.4	1.2	19.8	0	0	1008	0.00	1.7
12/01/2021 11:02	0.6	1.2	19.8	0	0	1009	-0.01	4.0
12/01/2021 12:02	0.6	0.2	20.4	0	0	1010	0.10	5.8

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS103
Instrument ID:	GS #0300035
Start Date:	22/12/2020 13:00
End Date:	12/01/2021 10:00

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	502

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.1	0.0	0	0	958	-0.01	-4.5
Maximum	0.3	1.0	0.1	1	0	1022	0.02	7.0
Range	0.3	1.0	0.1	1	0	64	0.02	11.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
22/12/2020 13:00	0.2	0.1	0.0	1	0	1002	0.00	6.4
22/12/2020 14:00	0.2	0.2	0.0	0	0	1002	0.00	6.4
22/12/2020 15:00	0.3	0.2	0.0	1	0	1002	0.00	5.9
22/12/2020 16:00	0.2	0.3	0.0	1	0	1002	0.00	5.1
22/12/2020 17:00	0.2	0.4	0.0	1	0	1002	0.00	4.6
22/12/2020 18:00	0.2	0.4	0.0	0	0	1002	0.00	3.8
22/12/2020 19:00	0.2	0.4	0.0	0	0	1001	0.00	3.7
22/12/2020 20:00	0.2	0.4	0.0	1	0	1001	0.00	3.5
22/12/2020 21:00	0.2	0.4	0.0	1	0	1001	0.00	3.8
22/12/2020 22:00	0.2	0.5	0.0	1	0	1001	0.00	4.2
22/12/2020 23:00	0.2	0.5	0.0	1	0	1001	0.00	4.1
23/12/2020 00:00	0.2	0.5	0.0	1	0	1000	0.00	4.0
23/12/2020 01:00	0.2	0.5	0.0	0	0	999	0.00	4.2
23/12/2020 02:00	0.2	0.5	0.0	1	0	999	0.00	4.2
23/12/2020 03:00	0.2	0.5	0.0	1	0	999	0.00	4.2
23/12/2020 04:00	0.2	0.5	0.0	1	0	998	0.00	4.2
23/12/2020 05:00	0.2	0.5	0.0	1	0	997	0.00	4.2
23/12/2020 06:00	0.2	0.5	0.0	0	0	997	0.00	4.2
23/12/2020 07:00	0.2	0.5	0.0	1	0	996	0.00	4.1
23/12/2020 08:00	0.2	0.5	0.0	1	0	996	0.00	4.2
23/12/2020 09:00	0.2	0.6	0.0	0	0	996	0.00	4.3
23/12/2020 10:00	0.2	0.5	0.0	0	0	996	0.00	4.6
23/12/2020 11:00	0.2	0.6	0.0	0	0	996	0.00	5.1
23/12/2020 12:00	0.2	0.6	0.0	0	0	995	0.00	5.5
23/12/2020 13:00	0.2	0.6	0.0	0	0	995	0.01	5.8
23/12/2020 14:00	0.2	0.6	0.0	0	0	995	0.00	6.1
23/12/2020 15:00	0.2	0.6	0.0	0	0	995	0.01	5.9
23/12/2020 16:00	0.2	0.6	0.0	0	0	996	0.00	5.4
23/12/2020 17:00	0.2	0.5	0.0	0	0	997	0.00	5.3
23/12/2020 18:00	0.2	0.6	0.0	0	0	998	0.00	5.2
23/12/2020 19:00	0.2	0.5	0.0	1	0	999	0.00	5.3
23/12/2020 20:00	0.2	0.5	0.0	0	0	1000	0.00	5.2
23/12/2020 21:00	0.2	0.6	0.0	0	0	1002	0.00	5.3
23/12/2020 22:00	0.2	0.6	0.0	0	0	1003	0.00	5.5
23/12/2020 23:00	0.2	0.6	0.0	0	0	1004	0.00	5.3
24/12/2020 00:00	0.3	0.6	0.0	0	0	1005	0.01	4.6
24/12/2020 01:00	0.2	0.6	0.0	0	0	1007	0.00	3.8
24/12/2020 02:00	0.2	0.6	0.0	0	0	1007	0.00	3.0
24/12/2020 03:00	0.2	0.6	0.0	1	0	1009	0.00	2.5
24/12/2020 04:00	0.2	0.7	0.0	1	0	1009	0.00	1.6
24/12/2020 05:00	0.2	0.7	0.0	1	0	1010	0.00	1.0
24/12/2020 06:00	0.2	0.7	0.0	1	0	1010	0.00	0.5
24/12/2020 07:00	0.2	0.7	0.0	1	0	1011	0.00	0.1
24/12/2020 08:00	0.2	0.7	0.0	1	0	1012	0.01	0.0
24/12/2020 09:00	0.2	0.7	0.1	1	0	1013	0.00	0.3
24/12/2020 10:00	0.2	0.7	0.0	1	0	1014	0.00	0.6
24/12/2020 11:00	0.2	0.7	0.0	1	0	1015	0.00	2.4
24/12/2020 12:00	0.2	0.7	0.0	1	0	1016	0.00	3.8
24/12/2020 13:00	0.2	0.7	0.0	1	0	1016	0.00	3.6
24/12/2020 14:00	0.2	0.7	0.0	1	0	1017	0.00	4.0
24/12/2020 15:00	0.2	0.8	0.0	1	0	1017	0.00	3.3
24/12/2020 16:00	0.2	0.9	0.0	0	0	1019	0.01	2.3
24/12/2020 17:00	0.2	0.8	0.0	1	0	1019	0.00	1.3
24/12/2020 18:00	0.2	0.9	0.0	1	0	1020	0.00	0.7
24/12/2020 19:00	0.2	0.9	0.0	1	0	1020	0.00	0.4
24/12/2020 20:00	0.1	0.9	0.0	1	0	1021	0.00	0.1
24/12/2020 21:00	0.1	0.8	0.0	1	0	1021	0.00	-0.5
24/12/2020 22:00	0.1	0.8	0.0	1	0	1022	-0.01	-0.8
24/12/2020 23:00	0.1	0.8	0.0	1	0	1022	0.00	-1.1
25/12/2020 00:00	0.1	0.8	0.0	1	0	1022	0.00	-1.4
25/12/2020 01:00	0.1	0.8	0.0	1	0	1022	0.00	-1.7
25/12/2020 02:00	0.2	0.8	0.0	1	0	1022	0.00	-1.9
25/12/2020 03:00	0.1	0.8	0.0	1	0	1022	0.00	-2.5
25/12/2020 04:00	0.1	0.8	0.0	1	0	1022	0.00	-2.7
25/12/2020 05:00	0.1	0.8	0.0	1	0	1022	0.00	-2.8
25/12/2020 06:00	0.1	0.8	0.1	1	0	1022	0.00	-2.9
25/12/2020 07:00	0.1	0.8	0.0	1	0	1022	0.00	-3.1
25/12/2020 08:00	0.1	0.9	0.0	1	0	1022	-0.01	-3.3
25/12/2020 09:00	0.1	0.9	0.0	1	0	1022	0.00	-3.1

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
25/12/2020 10:00	0.1	0.9	0.0	1	0	1022	0.00	-2.7
25/12/2020 11:00	0.1	0.8	0.0	1	0	1022	0.00	-1.2
25/12/2020 12:00	0.1	0.8	0.0	1	0	1021	0.00	0.1
25/12/2020 13:00	0.1	0.9	0.0	1	0	1021	0.00	1.2
25/12/2020 14:00	0.2	0.9	0.0	1	0	1021	0.00	1.2
25/12/2020 15:00	0.2	0.9	0.0	1	0	1020	0.01	1.1
25/12/2020 16:00	0.2	0.9	0.0	1	0	1019	0.00	0.6
25/12/2020 17:00	0.1	0.9	0.0	1	0	1018	0.00	0.5
25/12/2020 18:00	0.1	0.8	0.0	1	0	1017	0.00	0.6
25/12/2020 19:00	0.2	0.8	0.0	1	0	1017	0.00	0.8
25/12/2020 20:00	0.2	0.8	0.0	1	0	1017	0.00	0.5
25/12/2020 21:00	0.1	0.9	0.0	1	0	1015	0.00	0.7
25/12/2020 22:00	0.2	0.9	0.0	1	0	1015	0.00	1.0
25/12/2020 23:00	0.1	0.8	0.0	1	0	1014	0.00	1.7
26/12/2020 00:00	0.1	0.9	0.0	1	0	1013	0.00	2.1
26/12/2020 01:00	0.2	0.9	0.0	1	0	1012	0.00	2.2
26/12/2020 02:00	0.2	0.8	0.0	1	0	1011	0.01	2.6
26/12/2020 03:00	0.2	0.9	0.0	0	0	1010	0.00	3.1
26/12/2020 04:00	0.2	0.9	0.0	1	0	1009	0.01	3.7
26/12/2020 05:00	0.1	0.9	0.0	1	0	1008	0.00	4.1
26/12/2020 06:00	0.2	0.9	0.0	1	0	1007	0.00	4.4
26/12/2020 07:00	0.1	0.9	0.0	1	0	1007	0.01	4.8
26/12/2020 08:00	0.2	0.9	0.0	1	0	1006	0.00	5.1
26/12/2020 09:00	0.2	0.9	0.0	0	0	1005	0.00	5.0
26/12/2020 10:00	0.2	0.9	0.0	1	0	1004	0.00	5.1
26/12/2020 11:00	0.2	0.9	0.0	1	0	1003	0.00	5.5
26/12/2020 12:00	0.2	0.9	0.0	0	0	1001	0.00	6.0
26/12/2020 13:00	0.1	0.9	0.0	0	0	999	0.01	6.2
26/12/2020 14:00	0.2	0.9	0.0	0	0	996	0.00	6.5
26/12/2020 15:00	0.2	1.0	0.0	0	0	994	0.00	6.5
26/12/2020 16:00	0.2	1.0	0.0	0	0	992	0.00	6.6
26/12/2020 17:00	0.2	1.0	0.0	0	0	990	0.01	6.4
26/12/2020 18:00	0.2	1.0	0.0	0	0	988	0.01	6.7
26/12/2020 19:00	0.2	1.0	0.0	0	0	985	-0.01	6.4
26/12/2020 20:00	0.2	1.0	0.0	0	0	982	0.01	6.4
26/12/2020 21:00	0.2	1.0	0.0	0	0	979	0.01	6.3
26/12/2020 22:00	0.2	1.0	0.0	0	0	976	0.01	6.5
26/12/2020 23:00	0.2	0.8	0.0	0	0	972	0.01	6.6
27/12/2020 00:00	0.2	0.7	0.0	0	0	970	0.00	6.6
27/12/2020 01:00	0.3	0.6	0.0	0	0	967	0.00	6.5
27/12/2020 02:00	0.2	0.6	0.0	0	0	965	0.00	6.4
27/12/2020 03:00	0.2	0.6	0.0	0	0	964	0.01	5.7
27/12/2020 04:00	0.2	0.5	0.0	0	0	963	0.00	5.3
27/12/2020 05:00	0.1	0.5	0.0	0	0	963	0.00	4.4
27/12/2020 06:00	0.2	0.4	0.0	0	0	963	0.01	3.4
27/12/2020 07:00	0.2	0.4	0.0	0	0	962	0.00	2.5
27/12/2020 08:00	0.2	0.4	0.0	1	0	963	0.00	2.3
27/12/2020 09:00	0.2	0.4	0.0	1	0	963	0.00	2.4
27/12/2020 10:00	0.2	0.3	0.0	0	0	962	0.00	2.5
27/12/2020 11:00	0.2	0.3	0.0	1	0	962	0.00	3.3
27/12/2020 12:00	0.2	0.3	0.0	1	0	961	0.00	4.3
27/12/2020 13:00	0.2	0.3	0.0	1	0	960	0.01	4.7
27/12/2020 14:00	0.2	0.3	0.0	0	0	960	0.00	4.6
27/12/2020 15:00	0.2	0.2	0.0	0	0	959	0.00	5.4
27/12/2020 16:00	0.2	0.2	0.0	1	0	959	0.00	4.1
27/12/2020 17:00	0.2	0.2	0.0	1	0	959	0.00	3.1
27/12/2020 18:00	0.2	0.2	0.0	1	0	959	0.00	2.2
27/12/2020 19:00	0.2	0.2	0.0	1	0	959	0.00	1.8
27/12/2020 20:00	0.2	0.2	0.0	1	0	959	0.00	2.4
27/12/2020 21:00	0.2	0.2	0.0	1	0	959	0.00	2.3
27/12/2020 22:00	0.3	0.2	0.0	0	0	959	0.00	2.1
27/12/2020 23:00	0.2	0.2	0.0	1	0	959	0.00	1.6
28/12/2020 00:00	0.2	0.2	0.0	1	0	959	0.00	1.5
28/12/2020 01:00	0.2	0.2	0.0	0	0	959	0.00	1.0
28/12/2020 02:00	0.2	0.2	0.0	1	0	958	0.00	0.8
28/12/2020 03:00	0.2	0.2	0.0	1	0	958	0.00	1.0
28/12/2020 04:00	0.2	0.1	0.0	1	0	958	0.00	1.2
28/12/2020 05:00	0.2	0.1	0.0	1	0	958	0.00	1.5
28/12/2020 06:00	0.2	0.1	0.0	1	0	959	0.00	1.6
28/12/2020 07:00	0.2	0.1	0.0	1	0	961	0.00	1.5
28/12/2020 08:00	0.2	0.1	0.0	1	0	961	0.00	1.5
28/12/2020 09:00	0.2	0.1	0.0	1	0	963	0.00	1.6
28/12/2020 10:00	0.2	0.1	0.0	1	0	964	0.00	1.9
28/12/2020 11:00	0.2	0.1	0.0	1	0	965	0.00	2.3
28/12/2020 12:00	0.2	0.1	0.0	1	0	966	0.00	2.8
28/12/2020 13:00	0.2	0.1	0.0	1	0	966	0.00	3.6
28/12/2020 14:00	0.2	0.1	0.0	1	0	967	0.00	3.5
28/12/2020 15:00	0.2	0.1	0.0	1	0	968	0.00	3.3
28/12/2020 16:00	0.2	0.1	0.0	1	0	968	0.00	2.8
28/12/2020 17:00	0.2	0.1	0.0	1	0	969	0.00	2.4
28/12/2020 18:00	0.2	0.1	0.0	0	0	969	0.01	1.4
28/12/2020 19:00	0.2	0.1	0.0	1	0	970	0.00	1.4
28/12/2020 20:00	0.2	0.1	0.0	0	0	970	0.00	1.4
28/12/2020 21:00	0.2	0.1	0.0	1	0	971	0.01	1.7
28/12/2020 22:00	0.2	0.1	0.0	1	0	972	0.00	1.7
28/12/2020 23:00	0.2	0.1	0.0	1	0	972	0.00	1.6
29/12/2020 00:00	0.2	0.1	0.0	1	0	972	0.01	0.8
29/12/2020 01:00	0.2	0.1	0.0	1	0	973	0.00	0.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
29/12/2020 02:00	0.2	0.1	0.0	1	0	973	0.00	0.8
29/12/2020 03:00	0.2	0.1	0.0	1	0	974	0.00	0.4
29/12/2020 04:00	0.2	0.1	0.0	1	0	975	0.00	-0.5
29/12/2020 05:00	0.2	0.1	0.0	1	0	975	0.00	-0.6
29/12/2020 06:00	0.1	0.1	0.0	1	0	975	0.00	-0.3
29/12/2020 07:00	0.2	0.1	0.0	1	0	976	0.00	-0.1
29/12/2020 08:00	0.2	0.1	0.0	1	0	977	0.00	0.2
29/12/2020 09:00	0.2	0.1	0.0	1	0	978	0.00	0.6
29/12/2020 10:00	0.2	0.1	0.0	1	0	979	0.00	1.1
29/12/2020 11:00	0.2	0.1	0.0	1	0	980	0.00	1.8
29/12/2020 12:00	0.2	0.1	0.0	1	0	981	0.00	2.9
29/12/2020 13:00	0.2	0.1	0.0	0	0	982	0.00	3.5
29/12/2020 14:00	0.2	0.1	0.0	1	0	983	0.00	3.2
29/12/2020 15:00	0.2	0.1	0.0	1	0	984	0.00	2.2
29/12/2020 16:00	0.2	0.1	0.0	1	0	985	0.00	1.3
29/12/2020 17:00	0.2	0.1	0.0	1	0	986	0.00	0.6
29/12/2020 18:00	0.2	0.1	0.0	1	0	986	0.00	0.0
29/12/2020 19:00	0.2	0.1	0.0	1	0	987	0.00	-0.8
29/12/2020 20:00	0.2	0.1	0.0	1	0	987	0.00	-1.3
29/12/2020 21:00	0.2	0.1	0.0	1	0	988	0.00	-1.7
29/12/2020 22:00	0.2	0.1	0.0	1	0	988	0.00	-2.0
29/12/2020 23:00	0.2	0.1	0.0	1	0	989	0.00	-2.4
30/12/2020 00:00	0.2	0.1	0.0	1	0	989	0.00	-2.4
30/12/2020 01:00	0.2	0.1	0.0	1	0	989	0.00	-1.6
30/12/2020 02:00	0.2	0.1	0.0	1	0	989	0.00	-1.3
30/12/2020 03:00	0.1	0.1	0.0	1	0	989	0.00	-1.1
30/12/2020 04:00	0.2	0.1	0.0	1	0	989	0.00	-0.9
30/12/2020 05:00	0.2	0.1	0.0	1	0	990	0.00	-0.6
30/12/2020 06:00	0.2	0.2	0.0	1	0	990	0.00	-0.4
30/12/2020 07:00	0.2	0.2	0.0	1	0	990	0.00	-0.3
30/12/2020 08:00	0.2	0.2	0.0	1	0	990	0.00	-0.3
30/12/2020 09:00	0.2	0.2	0.0	1	0	991	0.00	-0.1
30/12/2020 10:00	0.2	0.2	0.0	1	0	991	0.00	0.3
30/12/2020 11:00	0.2	0.3	0.0	1	0	992	0.00	1.0
30/12/2020 12:00	0.2	0.3	0.0	1	0	991	0.00	1.3
30/12/2020 13:00	0.2	0.3	0.0	1	0	991	0.00	1.8
30/12/2020 14:00	0.2	0.3	0.0	1	0	992	0.00	2.3
30/12/2020 15:00	0.2	0.3	0.0	1	0	992	0.00	2.0
30/12/2020 16:00	0.1	0.3	0.0	1	0	992	0.00	1.5
30/12/2020 17:00	0.1	0.4	0.0	1	0	992	0.01	1.4
30/12/2020 18:00	0.1	0.4	0.0	1	0	993	0.00	1.2
30/12/2020 19:00	0.2	0.4	0.0	1	0	993	0.00	1.0
30/12/2020 20:00	0.2	0.5	0.0	1	0	993	0.00	0.7
30/12/2020 21:00	0.2	0.5	0.0	1	0	993	0.00	0.5
30/12/2020 22:00	0.2	0.5	0.0	1	0	993	0.00	0.1
30/12/2020 23:00	0.2	0.5	0.0	1	0	993	0.01	-0.1
31/12/2020 00:00	0.2	0.5	0.0	1	0	993	0.00	-0.2
31/12/2020 01:00	0.1	0.5	0.0	1	0	993	0.00	-0.2
31/12/2020 02:00	0.1	0.5	0.0	1	0	993	0.00	-0.1
31/12/2020 03:00	0.2	0.5	0.0	1	0	993	0.00	-0.1
31/12/2020 04:00	0.2	0.5	0.0	1	0	993	0.00	0.1
31/12/2020 05:00	0.1	0.6	0.0	1	0	993	0.00	0.1
31/12/2020 06:00	0.1	0.5	0.0	1	0	993	0.00	0.2
31/12/2020 07:00	0.1	0.5	0.0	1	0	993	0.00	0.3
31/12/2020 08:00	0.1	0.5	0.0	1	0	993	0.00	0.2
31/12/2020 09:00	0.1	0.5	0.0	1	0	994	0.00	0.3
31/12/2020 10:00	0.1	0.5	0.0	1	0	994	0.00	0.3
31/12/2020 11:00	0.2	0.5	0.0	1	0	994	0.00	0.4
31/12/2020 12:00	0.1	0.5	0.0	1	0	994	0.00	0.9
31/12/2020 13:00	0.1	0.5	0.0	1	0	994	0.00	2.0
31/12/2020 14:00	0.1	0.5	0.0	1	0	994	0.00	2.2
31/12/2020 15:00	0.1	0.5	0.0	1	0	994	0.00	2.0
31/12/2020 16:00	0.1	0.5	0.0	1	0	995	0.00	1.5
31/12/2020 17:00	0.2	0.6	0.0	1	0	996	0.00	1.0
31/12/2020 18:00	0.1	0.6	0.0	1	0	996	0.00	1.0
31/12/2020 19:00	0.1	0.6	0.0	1	0	996	0.00	0.7
31/12/2020 20:00	0.1	0.6	0.0	1	0	997	0.00	0.4
31/12/2020 21:00	0.1	0.6	0.0	1	0	998	0.00	0.3
31/12/2020 22:00	0.1	0.6	0.0	1	0	998	0.00	0.1
31/12/2020 23:00	0.1	0.6	0.0	1	0	999	0.00	0.2
01/01/2021 00:00	0.2	0.6	0.0	0	0	999	0.00	0.3
01/01/2021 01:00	0.2	0.6	0.0	1	0	999	0.00	0.3
01/01/2021 02:00	0.1	0.6	0.0	1	0	999	0.00	0.3
01/01/2021 03:00	0.1	0.6	0.0	1	0	1000	0.00	0.3
01/01/2021 04:00	0.1	0.6	0.0	1	0	1000	0.00	0.3
01/01/2021 05:00	0.2	0.6	0.0	1	0	1000	0.00	0.4
01/01/2021 06:00	0.1	0.6	0.0	1	0	1000	0.00	0.4
01/01/2021 07:00	0.2	0.6	0.0	1	0	1000	0.00	0.3
01/01/2021 08:00	0.1	0.6	0.0	1	0	1001	0.00	-0.4
01/01/2021 09:00	0.2	0.6	0.0	1	0	1002	0.00	-0.5
01/01/2021 10:00	0.1	0.7	0.0	1	0	1002	0.00	0.1
01/01/2021 11:00	0.1	0.6	0.0	1	0	1002	0.00	1.9
01/01/2021 12:00	0.1	0.6	0.0	1	0	1003	0.00	3.0
01/01/2021 13:00	0.2	0.6	0.0	1	0	1002	0.01	3.6
01/01/2021 14:00	0.1	0.6	0.0	1	0	1002	0.00	3.8
01/01/2021 15:00	0.1	0.6	0.0	1	0	1003	0.00	3.3
01/01/2021 16:00	0.2	0.6	0.0	1	0	1003	0.00	2.3
01/01/2021 17:00	0.1	0.6	0.0	1	0	1003	0.01	1.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
01/01/2021 18:00	0.1	0.7	0.0	1	0	1004	0.00	-0.1
01/01/2021 19:00	0.1	0.7	0.0	0	0	1004	0.00	-0.8
01/01/2021 20:00	0.1	0.7	0.0	1	0	1005	0.00	-1.3
01/01/2021 21:00	0.1	0.7	0.0	1	0	1005	0.00	-1.5
01/01/2021 22:00	0.1	0.7	0.0	1	0	1006	0.00	-1.9
01/01/2021 23:00	0.1	0.7	0.0	1	0	1006	0.00	-2.4
02/01/2021 00:00	0.1	0.7	0.0	1	0	1006	0.00	-2.4
02/01/2021 01:00	0.1	0.7	0.0	1	0	1006	0.00	-2.8
02/01/2021 02:00	0.1	0.8	0.0	1	0	1007	0.00	-2.7
02/01/2021 03:00	0.1	0.8	0.0	1	0	1007	0.00	-3.2
02/01/2021 04:00	0.1	0.8	0.0	1	0	1007	0.00	-3.5
02/01/2021 05:00	0.1	0.8	0.0	1	0	1006	0.00	-3.7
02/01/2021 06:00	0.1	0.8	0.0	1	0	1006	0.00	-4.0
02/01/2021 07:00	0.1	0.8	0.0	1	0	1006	0.00	-4.1
02/01/2021 08:00	0.1	0.9	0.0	1	0	1006	0.00	-4.2
02/01/2021 09:00	0.1	0.9	0.0	1	0	1006	0.00	-3.2
02/01/2021 10:00	0.1	0.9	0.0	1	0	1006	0.00	-2.0
02/01/2021 11:00	0.1	0.9	0.0	1	0	1006	0.00	-1.5
02/01/2021 12:00	0.1	0.8	0.0	1	0	1006	0.00	-0.7
02/01/2021 13:00	0.0	0.8	0.0	1	0	1006	0.00	0.9
02/01/2021 14:00	0.1	0.8	0.0	1	0	1006	0.00	1.7
02/01/2021 15:00	0.1	0.8	0.0	1	0	1006	0.00	0.6
02/01/2021 16:00	0.1	0.8	0.0	1	0	1006	0.01	0.5
02/01/2021 17:00	0.1	0.8	0.0	1	0	1007	0.01	0.4
02/01/2021 18:00	0.1	0.7	0.0	1	0	1007	0.00	0.2
02/01/2021 19:00	0.1	0.7	0.0	1	0	1007	0.00	-0.4
02/01/2021 20:00	0.1	0.8	0.0	1	0	1008	0.00	-0.7
02/01/2021 21:00	0.1	0.8	0.0	1	0	1008	0.00	-0.7
02/01/2021 22:00	0.1	0.7	0.0	1	0	1008	0.00	-0.7
02/01/2021 23:00	0.1	0.8	0.0	1	0	1008	0.00	-0.4
03/01/2021 00:00	0.1	0.7	0.0	1	0	1009	0.00	-0.7
03/01/2021 01:00	0.1	0.7	0.0	1	0	1009	0.01	-0.6
03/01/2021 02:00	0.1	0.8	0.0	1	0	1009	0.00	-0.4
03/01/2021 03:00	0.1	0.1	0.0	1	0	1009	0.00	-0.3
03/01/2021 04:00	0.1	0.7	0.0	1	0	1009	0.00	-0.4
03/01/2021 05:00	0.1	0.7	0.0	1	0	1009	0.00	-0.7
03/01/2021 06:00	0.1	0.8	0.0	1	0	1009	0.00	-0.6
03/01/2021 07:00	0.1	0.1	0.0	1	0	1009	0.00	-0.6
03/01/2021 08:00	0.1	0.8	0.0	1	0	1009	0.00	-0.7
03/01/2021 09:00	0.1	0.8	0.0	1	0	1010	0.00	-0.5
03/01/2021 10:00	0.1	0.7	0.0	1	0	1010	0.00	-0.1
03/01/2021 11:00	0.1	0.7	0.0	1	0	1011	0.00	2.3
03/01/2021 12:00	0.1	0.1	0.0	1	0	1010	0.00	3.7
03/01/2021 13:00	0.1	0.7	0.0	1	0	1010	0.01	4.2
03/01/2021 14:00	0.1	0.7	0.0	0	0	1010	0.00	3.8
03/01/2021 15:00	0.2	0.7	0.0	0	0	1011	0.00	3.6
03/01/2021 16:00	0.2	0.1	0.0	0	0	1011	0.01	2.2
03/01/2021 17:00	0.1	0.7	0.0	1	0	1011	0.00	1.4
03/01/2021 18:00	0.1	0.7	0.0	1	0	1011	0.00	1.2
03/01/2021 19:00	0.1	0.7	0.0	1	0	1012	0.00	0.7
03/01/2021 20:00	0.1	0.7	0.0	0	0	1013	0.00	0.4
03/01/2021 21:00	0.1	0.8	0.0	1	0	1013	0.00	-0.2
03/01/2021 22:00	0.1	0.8	0.1	1	0	1013	0.00	-0.4
03/01/2021 23:00	0.1	0.8	0.0	1	0	1014	0.00	-0.9
04/01/2021 00:00	0.1	0.8	0.0	1	0	1014	0.00	0.0
04/01/2021 01:00	0.1	0.7	0.0	1	0	1014	0.01	-0.2
04/01/2021 02:00	0.1	0.7	0.0	1	0	1014	0.00	-0.1
04/01/2021 03:00	0.1	0.8	0.0	1	0	1014	0.00	-0.7
04/01/2021 04:00	0.1	0.8	0.0	1	0	1014	0.01	-1.3
04/01/2021 05:00	0.1	0.8	0.0	1	0	1014	0.00	-1.1
04/01/2021 06:00	0.1	0.8	0.0	1	0	1014	0.00	-0.6
04/01/2021 07:00	0.1	0.7	0.0	1	0	1014	0.00	-0.2
04/01/2021 08:00	0.1	0.8	0.0	1	0	1014	0.00	-0.4
04/01/2021 09:00	0.0	0.8	0.0	1	0	1015	0.00	-0.2
04/01/2021 10:00	0.0	0.8	0.0	1	0	1015	0.00	0.3
04/01/2021 11:00	0.1	0.8	0.0	1	0	1015	0.00	1.9
04/01/2021 12:00	0.1	0.8	0.0	1	0	1015	0.01	2.4
04/01/2021 13:00	0.1	0.7	0.0	1	0	1015	0.00	3.2
04/01/2021 14:00	0.1	0.7	0.0	1	0	1014	0.00	3.7
04/01/2021 15:00	0.1	0.8	0.0	0	0	1014	0.00	3.1
04/01/2021 16:00	0.1	0.7	0.0	1	0	1014	0.00	2.2
04/01/2021 17:00	0.1	0.7	0.0	0	0	1015	0.00	1.6
04/01/2021 18:00	0.1	0.8	0.0	1	0	1015	0.00	1.2
04/01/2021 19:00	0.1	0.8	0.0	1	0	1015	0.00	1.4
04/01/2021 20:00	0.1	0.8	0.0	1	0	1015	0.00	1.0
04/01/2021 21:00	0.1	0.8	0.0	1	0	1015	0.00	1.0
04/01/2021 22:00	0.1	0.8	0.0	1	0	1015	0.00	1.2
04/01/2021 23:00	0.1	0.8	0.0	1	0	1015	0.01	1.2
05/01/2021 00:00	0.1	0.8	0.0	0	0	1015	0.00	1.2
05/01/2021 01:00	0.1	0.8	0.0	1	0	1015	0.00	1.0
05/01/2021 02:00	0.1	0.8	0.0	1	0	1015	0.00	0.5
05/01/2021 03:00	0.1	0.8	0.0	1	0	1014	0.00	0.4
05/01/2021 04:00	0.1	0.8	0.0	0	0	1014	0.00	0.1
05/01/2021 05:00	0.1	0.8	0.0	0	0	1014	0.00	0.2
05/01/2021 06:00	0.1	0.8	0.0	1	0	1014	0.00	0.5
05/01/2021 07:00	0.1	0.8	0.0	1	0	1014	0.01	0.5
05/01/2021 08:00	0.0	0.8	0.0	1	0	1014	0.00	0.5
05/01/2021 09:00	0.1	0.7	0.0	1	0	1015	0.01	0.7

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
05/01/2021 10:00	0.1	0.7	0.0	1	0	1015	0.01	1.2
05/01/2021 11:00	0.1	0.7	0.0	1	0	1015	0.01	1.9
05/01/2021 12:00	0.1	0.8	0.0	1	0	1015	0.00	2.4
05/01/2021 13:00	0.1	0.7	0.0	1	0	1014	0.01	3.9
05/01/2021 14:00	0.1	0.7	0.0	1	0	1014	0.00	4.7
05/01/2021 15:00	0.1	0.7	0.0	1	0	1014	0.00	3.5
05/01/2021 16:00	0.1	0.7	0.0	1	0	1014	0.00	2.2
05/01/2021 17:00	0.1	0.7	0.0	0	0	1014	0.00	1.8
05/01/2021 18:00	0.1	0.7	0.0	0	0	1014	0.00	1.2
05/01/2021 19:00	0.1	0.7	0.0	1	0	1014	0.00	1.3
05/01/2021 20:00	0.1	0.7	0.0	1	0	1015	0.01	1.3
05/01/2021 21:00	0.1	0.7	0.0	1	0	1014	0.00	1.3
05/01/2021 22:00	0.1	0.7	0.0	1	0	1014	0.00	0.3
05/01/2021 23:00	0.1	0.8	0.0	0	0	1014	0.01	-0.3
06/01/2021 00:00	0.1	0.8	0.0	1	0	1014	0.00	-0.5
06/01/2021 01:00	0.1	0.8	0.0	1	0	1014	0.00	-0.8
06/01/2021 02:00	0.1	0.8	0.0	1	0	1014	0.00	-1.3
06/01/2021 03:00	0.0	0.8	0.0	1	0	1014	0.00	-1.7
06/01/2021 04:00	0.0	0.8	0.0	1	0	1013	0.00	-0.8
06/01/2021 05:00	0.0	0.8	0.0	1	0	1013	0.00	-0.3
06/01/2021 06:00	0.0	0.8	0.0	1	0	1012	0.00	-0.6
06/01/2021 07:00	0.0	0.8	0.0	1	0	1012	0.00	-1.1
06/01/2021 08:00	0.0	0.8	0.0	1	0	1013	0.00	-1.5
06/01/2021 09:00	0.1	0.8	0.0	1	0	1013	0.01	-1.6
06/01/2021 10:00	0.0	0.8	0.0	1	0	1013	0.00	-0.7
06/01/2021 11:00	0.0	0.8	0.0	1	0	1013	0.00	-0.2
06/01/2021 12:00	0.1	0.8	0.0	1	0	1012	0.00	1.1
06/01/2021 13:00	0.0	0.8	0.0	1	0	1011	0.00	2.5
06/01/2021 14:00	0.1	0.8	0.0	1	0	1011	0.00	2.6
06/01/2021 15:00	0.0	0.7	0.0	0	0	1011	0.00	2.1
06/01/2021 16:00	0.1	0.7	0.0	1	0	1011	0.01	1.0
06/01/2021 17:00	0.1	0.8	0.0	1	0	1011	0.00	-0.3
06/01/2021 18:00	0.1	0.8	0.0	1	0	1011	0.00	-1.3
06/01/2021 19:00	0.0	0.8	0.0	1	0	1011	0.00	-2.0
06/01/2021 20:00	0.0	0.9	0.0	1	0	1011	0.00	-2.4
06/01/2021 21:00	0.0	0.8	0.0	1	0	1011	0.00	-2.9
06/01/2021 22:00	0.0	0.9	0.0	1	0	1010	0.00	-3.2
06/01/2021 23:00	0.0	0.9	0.0	1	0	1010	0.00	-3.5
07/01/2021 00:00	0.0	0.9	0.1	1	0	1010	0.00	-3.8
07/01/2021 01:00	0.0	0.9	0.0	1	0	1010	0.00	-4.1
07/01/2021 02:00	0.1	0.9	0.0	1	0	1009	0.00	-4.3
07/01/2021 03:00	0.0	0.9	0.0	1	0	1009	0.00	-4.5
07/01/2021 04:00	0.0	0.9	0.0	1	0	1009	0.00	-3.2
07/01/2021 05:00	0.0	0.9	0.0	1	0	1008	0.00	-2.4
07/01/2021 06:00	0.0	0.9	0.0	1	0	1008	0.00	-2.0
07/01/2021 07:00	0.0	0.9	0.0	1	0	1008	0.00	-1.6
07/01/2021 08:00	0.0	0.9	0.0	1	0	1008	0.00	-1.4
07/01/2021 09:00	0.0	0.9	0.0	1	0	1008	0.00	-1.2
07/01/2021 10:00	0.0	0.9	0.0	1	0	1008	0.00	-0.7
07/01/2021 11:00	0.0	0.9	0.0	1	0	1008	0.01	-0.1
07/01/2021 12:00	0.0	0.9	0.0	1	0	1007	0.00	0.5
07/01/2021 13:00	0.0	0.9	0.0	1	0	1007	0.00	0.8
07/01/2021 14:00	0.0	0.8	0.0	1	0	1006	0.00	1.0
07/01/2021 15:00	0.1	0.8	0.0	1	0	1006	0.00	0.4
07/01/2021 16:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
07/01/2021 17:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
07/01/2021 18:00	0.0	0.8	0.0	1	0	1006	0.01	0.1
07/01/2021 19:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
07/01/2021 20:00	0.0	0.8	0.0	1	0	1006	0.00	0.2
07/01/2021 21:00	0.1	0.8	0.0	1	0	1006	0.01	0.3
07/01/2021 22:00	0.0	0.8	0.0	1	0	1006	0.00	0.3
07/01/2021 23:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
08/01/2021 00:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
08/01/2021 01:00	0.0	0.8	0.0	1	0	1006	0.00	0.1
08/01/2021 02:00	0.0	0.8	0.0	1	0	1005	0.00	0.2
08/01/2021 03:00	0.0	0.8	0.0	1	0	1006	0.00	0.3
08/01/2021 04:00	0.1	0.8	0.0	1	0	1006	0.01	0.3
08/01/2021 05:00	0.1	0.8	0.0	1	0	1005	0.00	0.3
08/01/2021 06:00	0.0	0.8	0.0	1	0	1006	0.00	0.3
08/01/2021 07:00	0.0	0.8	0.0	1	0	1006	0.00	0.4
08/01/2021 08:00	0.0	0.8	0.0	1	0	1006	0.00	0.3
08/01/2021 09:00	0.0	0.8	0.0	1	0	1007	0.00	0.6
08/01/2021 10:00	0.0	0.8	0.0	1	0	1007	0.00	1.2
08/01/2021 11:00	0.0	0.8	0.0	1	0	1008	0.00	1.7
08/01/2021 12:00	0.1	0.8	0.0	1	0	1008	0.00	2.4
08/01/2021 13:00	0.1	0.8	0.0	1	0	1008	0.00	2.8
08/01/2021 14:00	0.1	0.8	0.0	1	0	1008	0.01	2.9
08/01/2021 15:00	0.1	0.8	0.0	1	0	1009	0.00	2.6
08/01/2021 16:00	0.1	0.8	0.0	1	0	1010	0.01	3.1
08/01/2021 17:00	0.0	0.8	0.0	1	0	1010	0.00	1.9
08/01/2021 18:00	0.0	0.8	0.0	1	0	1011	0.00	1.1
08/01/2021 19:00	0.0	0.8	0.0	1	0	1011	0.00	0.9
08/01/2021 20:00	0.0	0.8	0.0	1	0	1012	0.00	1.0
08/01/2021 21:00	0.0	0.8	0.0	1	0	1012	0.01	1.1
08/01/2021 22:00	0.0	0.8	0.0	0	0	1013	0.00	0.6
08/01/2021 23:00	0.1	0.8	0.0	1	0	1013	0.00	0.7
09/01/2021 00:00	0.1	0.8	0.0	0	0	1013	0.00	0.4
09/01/2021 01:00	0.0	0.8	0.0	1	0	1014	0.01	0.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
09/01/2021 02:00	0.1	0.8	0.0	1	0	1014	0.00	0.3
09/01/2021 03:00	0.0	0.8	0.0	1	0	1014	0.01	0.4
09/01/2021 04:00	0.0	0.8	0.0	1	0	1014	0.00	-0.3
09/01/2021 05:00	0.0	0.8	0.0	1	0	1015	0.00	-1.1
09/01/2021 06:00	0.0	0.8	0.0	0	0	1015	0.00	-1.3
09/01/2021 07:00	0.0	0.8	0.0	1	0	1015	0.00	-1.4
09/01/2021 08:00	0.0	0.9	0.0	1	0	1015	0.00	-1.6
09/01/2021 09:00	0.0	0.9	0.0	1	0	1016	0.00	-2.0
09/01/2021 10:00	0.0	0.9	0.0	1	0	1016	0.00	-0.6
09/01/2021 11:00	0.0	0.9	0.0	1	0	1016	0.00	0.2
09/01/2021 12:00	0.0	0.8	0.0	1	0	1016	0.00	1.0
09/01/2021 13:00	0.0	0.8	0.0	1	0	1016	0.00	1.8
09/01/2021 14:00	0.0	0.8	0.0	1	0	1015	0.00	1.5
09/01/2021 15:00	0.0	0.8	0.0	1	0	1015	0.00	1.9
09/01/2021 16:00	0.1	0.8	0.0	1	0	1015	0.00	0.8
09/01/2021 17:00	0.0	0.8	0.0	1	0	1015	0.00	0.8
09/01/2021 18:00	0.0	0.8	0.0	1	0	1015	0.00	0.6
09/01/2021 19:00	0.0	0.8	0.0	1	0	1015	0.01	0.4
09/01/2021 20:00	0.1	0.8	0.0	1	0	1015	0.00	-0.3
09/01/2021 21:00	0.0	0.9	0.0	1	0	1015	0.00	-0.9
09/01/2021 22:00	0.0	0.9	0.0	1	0	1015	0.00	-0.6
09/01/2021 23:00	0.0	0.9	0.0	1	0	1015	0.00	-0.6
10/01/2021 00:00	0.0	0.9	0.0	1	0	1015	0.00	-0.2
10/01/2021 01:00	0.0	0.9	0.0	1	0	1015	0.00	0.0
10/01/2021 02:00	0.0	0.8	0.0	1	0	1014	0.01	0.1
10/01/2021 03:00	0.0	0.8	0.0	1	0	1015	0.01	0.3
10/01/2021 04:00	0.1	0.8	0.0	1	0	1014	0.00	0.4
10/01/2021 05:00	0.0	0.8	0.0	1	0	1014	0.00	0.5
10/01/2021 06:00	0.0	0.8	0.0	1	0	1014	0.00	0.7
10/01/2021 07:00	0.0	0.8	0.0	1	0	1014	0.01	0.9
10/01/2021 08:00	0.0	0.8	0.0	1	0	1014	0.00	0.9
10/01/2021 09:00	0.0	0.8	0.0	1	0	1014	0.00	1.2
10/01/2021 10:00	0.0	0.8	0.0	1	0	1014	0.00	1.6
10/01/2021 11:00	0.0	0.8	0.0	1	0	1014	0.00	2.1
10/01/2021 12:00	0.0	0.8	0.0	0	0	1014	0.01	2.4
10/01/2021 13:00	0.0	0.8	0.0	1	0	1013	0.00	2.9
10/01/2021 14:00	0.1	0.8	0.0	1	0	1012	0.00	3.4
10/01/2021 15:00	0.0	0.8	0.0	1	0	1012	0.00	3.8
10/01/2021 16:00	0.0	0.8	0.0	1	0	1012	0.00	3.7
10/01/2021 17:00	0.0	0.7	0.0	0	0	1011	0.00	3.8
10/01/2021 18:00	0.0	0.7	0.0	1	0	1011	0.00	3.9
10/01/2021 19:00	0.0	0.7	0.0	1	0	1011	0.00	4.0
10/01/2021 20:00	0.0	0.7	0.0	0	0	1010	0.01	3.8
10/01/2021 21:00	0.0	0.7	0.0	1	0	1010	0.00	3.8
10/01/2021 22:00	0.1	0.7	0.0	1	0	1010	0.00	3.9
10/01/2021 23:00	0.1	0.7	0.0	1	0	1010	0.00	3.9
11/01/2021 00:00	0.1	0.7	0.0	1	0	1009	0.00	3.9
11/01/2021 01:00	0.1	0.7	0.0	1	0	1008	0.00	3.8
11/01/2021 02:00	0.0	0.7	0.0	1	0	1008	0.00	4.0
11/01/2021 03:00	0.1	0.7	0.0	0	0	1007	0.01	4.1
11/01/2021 04:00	0.1	0.7	0.0	1	0	1007	0.01	4.0
11/01/2021 05:00	0.0	0.7	0.0	0	0	1006	0.00	4.2
11/01/2021 06:00	0.1	0.7	0.0	0	0	1005	0.00	4.3
11/01/2021 07:00	0.0	0.7	0.0	0	0	1005	0.00	4.5
11/01/2021 08:00	0.1	0.7	0.0	1	0	1004	0.01	4.5
11/01/2021 09:00	0.1	0.7	0.0	1	0	1004	0.00	4.4
11/01/2021 10:00	0.1	0.7	0.0	0	0	1004	0.00	4.6
11/01/2021 11:00	0.0	0.7	0.0	0	0	1003	0.00	4.7
11/01/2021 12:00	0.1	0.7	0.0	0	0	1003	0.00	5.0
11/01/2021 13:00	0.0	0.7	0.0	0	0	1002	0.01	5.4
11/01/2021 14:00	0.1	0.7	0.0	0	0	1001	0.00	5.9
11/01/2021 15:00	0.1	0.7	0.0	0	0	1000	0.00	6.1
11/01/2021 16:00	0.1	0.7	0.0	1	0	999	0.00	6.4
11/01/2021 17:00	0.1	0.8	0.0	0	0	999	0.01	6.6
11/01/2021 18:00	0.1	0.8	0.0	0	0	998	0.00	6.7
11/01/2021 19:00	0.1	0.8	0.0	0	0	998	0.01	6.9
11/01/2021 20:00	0.1	0.8	0.0	0	0	997	0.00	7.0
11/01/2021 21:00	0.1	0.8	0.0	0	0	997	0.02	6.9
11/01/2021 22:00	0.0	0.9	0.0	0	0	997	0.01	6.7
11/01/2021 23:00	0.1	0.9	0.0	0	0	996	0.01	6.5
12/01/2021 00:00	0.0	0.9	0.0	0	0	996	0.00	6.4
12/01/2021 01:00	0.1	0.9	0.0	0	0	996	0.01	6.4
12/01/2021 02:00	0.1	0.9	0.0	0	0	996	0.01	6.4
12/01/2021 03:00	0.1	1.0	0.0	0	0	997	0.00	6.3
12/01/2021 04:00	0.1	1.0	0.0	0	0	997	0.01	6.3
12/01/2021 05:00	0.1	1.0	0.0	0	0	998	0.00	5.8
12/01/2021 06:00	0.0	0.9	0.0	0	0	998	0.00	5.5
12/01/2021 07:00	0.1	0.9	0.0	1	0	1000	0.00	4.6
12/01/2021 08:00	0.0	0.9	0.0	1	0	1001	0.00	3.6
12/01/2021 09:00	0.0	0.9	0.0	0	0	1002	0.01	1.9
12/01/2021 10:00	0.0	0.9	0.0	0	0	1003	0.00	1.7

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS104B
Instrument ID:	GS #0300032
Start Date:	22/12/2020 13:00
End Date:	12/01/2021 11:00

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	503

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.1	14.5	0	0	958	-0.04	-5.0
Maximum	2.2	3.9	18.6	1	17	1022	0.02	6.9
Range	2.2	3.8	4.1	0	17	64	0.06	12.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
22/12/2020 13:00	1.0	1.0	17.6	0	4	1002	0.00	6.0
22/12/2020 14:00	1.0	1.1	17.6	0	5	1002	0.00	6.0
22/12/2020 15:00	1.1	1.2	17.5	0	6	1002	0.00	5.9
22/12/2020 16:00	1.1	1.3	17.4	1	6	1002	0.00	5.2
22/12/2020 17:00	1.0	1.5	17.3	1	7	1002	-0.01	4.6
22/12/2020 18:00	1.0	1.6	17.0	1	7	1002	0.01	3.8
22/12/2020 19:00	1.0	1.8	16.8	1	8	1001	0.01	3.5
22/12/2020 20:00	1.0	1.9	17.0	1	8	1001	0.00	3.4
22/12/2020 21:00	1.1	1.9	16.5	1	9	1001	0.00	3.6
22/12/2020 22:00	1.0	2.0	16.5	1	9	1001	-0.01	4.3
22/12/2020 23:00	1.0	2.0	16.4	1	10	1001	0.00	4.1
23/12/2020 00:00	1.0	2.1	16.3	1	10	1000	0.00	4.1
23/12/2020 01:00	1.0	2.2	16.2	1	11	999	-0.01	4.2
23/12/2020 02:00	1.0	2.2	16.2	1	11	999	0.00	4.3
23/12/2020 03:00	1.0	2.3	16.1	1	11	999	-0.01	4.3
23/12/2020 04:00	1.0	2.3	16.0	1	12	998	0.00	4.3
23/12/2020 05:00	1.0	2.4	15.9	1	12	997	-0.01	4.2
23/12/2020 06:00	1.0	2.4	15.8	1	13	997	-0.01	4.2
23/12/2020 07:00	1.0	2.4	15.7	1	13	996	-0.01	4.3
23/12/2020 08:00	1.0	2.5	15.6	1	14	996	-0.01	4.3
23/12/2020 09:00	1.0	2.6	15.6	1	15	996	-0.01	4.4
23/12/2020 10:00	1.0	2.6	15.6	1	16	996	-0.01	4.7
23/12/2020 11:00	1.0	2.6	15.7	1	16	996	0.00	5.2
23/12/2020 12:00	1.0	2.5	15.8	1	17	995	0.00	5.5
23/12/2020 13:00	1.0	2.5	15.9	1	17	995	0.00	5.7
23/12/2020 14:00	1.0	2.4	16.1	1	16	995	-0.01	6.0
23/12/2020 15:00	1.0	2.4	16.2	1	16	995	0.00	5.9
23/12/2020 16:00	1.0	2.3	16.3	1	16	996	-0.01	5.6
23/12/2020 17:00	1.0	2.3	16.4	1	17	997	0.01	5.4
23/12/2020 18:00	1.0	2.2	16.5	1	16	998	0.00	5.4
23/12/2020 19:00	1.0	2.2	16.6	1	16	999	0.00	5.4
23/12/2020 20:00	1.0	2.1	16.6	1	16	1000	-0.01	5.4
23/12/2020 21:00	1.0	2.1	16.7	1	16	1002	-0.01	5.5
23/12/2020 22:00	1.0	2.1	17.2	1	16	1003	-0.01	5.6
23/12/2020 23:00	1.0	2.1	16.8	1	16	1004	-0.01	5.5
24/12/2020 00:00	1.0	2.1	17.1	1	15	1005	-0.01	5.0
24/12/2020 01:00	1.0	2.1	16.9	1	15	1007	-0.01	4.3
24/12/2020 02:00	1.0	2.1	16.7	1	14	1007	0.00	3.5
24/12/2020 03:00	1.0	2.1	16.8	1	13	1009	-0.01	3.0
24/12/2020 04:00	1.0	2.0	17.0	1	12	1009	0.00	2.2
24/12/2020 05:00	1.0	2.0	16.6	1	12	1010	0.00	1.4
24/12/2020 06:00	1.0	2.1	16.4	1	12	1010	-0.01	0.8
24/12/2020 07:00	1.0	2.1	16.3	1	12	1011	0.00	0.3
24/12/2020 08:00	1.0	2.2	16.4	1	11	1012	-0.01	0.2
24/12/2020 09:00	1.0	2.1	16.2	1	12	1013	-0.01	0.4
24/12/2020 10:00	1.0	2.1	16.2	1	11	1014	0.00	0.7
24/12/2020 11:00	1.0	2.1	16.3	1	11	1015	0.00	2.1
24/12/2020 12:00	1.0	2.1	16.5	1	11	1016	0.00	4.5
24/12/2020 13:00	1.0	2.0	16.6	1	10	1016	0.00	4.1
24/12/2020 14:00	1.0	2.0	16.8	1	10	1017	0.00	4.4
24/12/2020 15:00	1.0	1.9	16.9	1	10	1017	-0.01	4.1
24/12/2020 16:00	1.0	1.9	16.9	1	9	1019	0.00	2.9
24/12/2020 17:00	1.0	2.0	16.7	1	9	1019	-0.01	2.0
24/12/2020 18:00	1.0	2.1	17.0	1	8	1020	0.00	1.1
24/12/2020 19:00	1.0	2.0	17.0	1	8	1020	0.00	0.7
24/12/2020 20:00	1.0	2.1	16.9	1	8	1021	0.00	0.6
24/12/2020 21:00	1.0	2.1	16.2	1	7	1021	0.00	-0.1
24/12/2020 22:00	1.0	2.2	16.2	1	7	1022	0.00	-0.6
24/12/2020 23:00	1.0	2.2	16.0	1	7	1022	0.00	-1.0
25/12/2020 00:00	1.0	2.3	16.0	1	6	1022	-0.01	-1.2
25/12/2020 01:00	1.0	2.3	15.9	1	6	1022	-0.01	-1.5
25/12/2020 02:00	1.0	2.4	15.8	1	6	1022	0.00	-1.5
25/12/2020 03:00	1.0	2.5	15.7	1	5	1022	0.00	-2.3
25/12/2020 04:00	1.0	2.6	15.6	1	5	1022	-0.02	-2.7
25/12/2020 05:00	1.0	2.6	15.5	1	5	1022	-0.01	-2.9
25/12/2020 06:00	1.0	2.7	15.4	1	4	1022	0.00	-2.9
25/12/2020 07:00	1.0	2.7	15.3	1	4	1022	0.00	-3.3
25/12/2020 08:00	1.0	2.8	15.2	1	4	1022	-0.01	-3.5
25/12/2020 09:00	1.0	2.8	15.1	1	4	1022	0.00	-3.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
25/12/2020 10:00	1.0	2.8	15.1	1	4	1022	0.00	-2.8
25/12/2020 11:00	1.0	2.9	15.2	1	3	1022	0.00	-1.5
25/12/2020 12:00	1.0	2.8	15.3	1	4	1021	-0.01	-0.1
25/12/2020 13:00	1.0	2.9	15.4	1	3	1021	0.02	1.2
25/12/2020 14:00	1.0	2.8	15.5	1	3	1021	0.00	1.4
25/12/2020 15:00	1.0	2.8	15.6	1	3	1020	0.00	1.5
25/12/2020 16:00	1.0	2.9	15.6	1	3	1019	0.00	1.1
25/12/2020 17:00	1.0	2.9	15.6	1	3	1018	0.00	1.0
25/12/2020 18:00	1.0	2.9	15.6	1	3	1017	-0.01	1.1
25/12/2020 19:00	1.0	2.9	15.6	1	3	1017	-0.02	1.2
25/12/2020 20:00	1.0	3.0	15.5	1	3	1017	0.00	1.1
25/12/2020 21:00	1.0	3.0	15.5	1	2	1015	0.01	1.3
25/12/2020 22:00	1.0	3.0	15.5	1	2	1015	-0.01	1.6
25/12/2020 23:00	1.0	2.9	15.7	1	2	1014	0.00	2.0
26/12/2020 00:00	1.0	2.9	15.7	1	2	1013	-0.01	2.4
26/12/2020 01:00	1.0	2.9	15.8	1	2	1012	-0.01	2.5
26/12/2020 02:00	1.0	2.7	15.9	1	2	1011	0.00	2.9
26/12/2020 03:00	1.0	2.6	16.1	1	2	1010	0.00	3.3
26/12/2020 04:00	1.0	2.3	16.3	1	2	1009	-0.01	3.8
26/12/2020 05:00	1.0	2.2	16.5	1	2	1008	0.00	4.2
26/12/2020 06:00	1.0	2.0	16.6	1	2	1007	0.00	4.5
26/12/2020 07:00	1.0	2.1	16.7	0	2	1007	0.00	4.7
26/12/2020 08:00	1.0	1.5	17.1	0	2	1006	-0.01	5.1
26/12/2020 09:00	0.9	1.6	17.1	0	2	1005	-0.01	5.0
26/12/2020 10:00	0.9	1.6	17.2	0	2	1004	0.00	5.1
26/12/2020 11:00	0.9	1.7	17.1	0	2	1003	-0.01	5.5
26/12/2020 12:00	0.9	1.7	17.2	0	2	1001	-0.01	6.0
26/12/2020 13:00	0.9	1.6	17.3	0	1	999	-0.01	6.1
26/12/2020 14:00	0.9	1.2	17.6	0	1	996	-0.01	6.2
26/12/2020 15:00	0.9	1.0	17.8	0	1	994	0.00	6.2
26/12/2020 16:00	0.8	0.7	17.9	0	1	992	0.00	6.1
26/12/2020 17:00	0.8	0.7	18.0	0	1	990	0.00	6.1
26/12/2020 18:00	0.9	0.7	18.0	0	1	988	0.00	6.2
26/12/2020 19:00	0.8	0.7	18.0	0	1	985	-0.01	6.1
26/12/2020 20:00	0.7	0.5	18.1	0	1	982	-0.01	6.2
26/12/2020 21:00	0.8	0.5	18.1	0	1	979	-0.01	6.2
26/12/2020 22:00	0.8	0.5	18.1	0	1	976	0.00	6.3
26/12/2020 23:00	0.7	0.6	18.0	0	1	972	0.00	6.5
27/12/2020 00:00	0.6	0.7	17.9	0	1	970	-0.01	6.5
27/12/2020 01:00	0.6	0.7	17.9	0	1	967	0.00	6.4
27/12/2020 02:00	0.6	0.5	18.1	0	1	965	0.00	6.4
27/12/2020 03:00	0.6	0.3	18.2	0	1	964	-0.02	5.8
27/12/2020 04:00	0.6	0.3	18.2	0	1	963	-0.01	5.4
27/12/2020 05:00	0.6	0.3	18.2	0	1	963	0.00	4.7
27/12/2020 06:00	0.7	0.3	18.1	0	1	963	0.00	3.7
27/12/2020 07:00	0.8	0.4	17.9	1	1	962	0.00	2.6
27/12/2020 08:00	0.8	0.5	17.7	1	0	963	0.00	2.3
27/12/2020 09:00	0.8	0.7	17.6	1	0	963	0.00	2.3
27/12/2020 10:00	0.9	0.7	17.6	1	0	962	0.00	2.5
27/12/2020 11:00	0.9	0.7	17.6	1	0	962	0.01	3.3
27/12/2020 12:00	0.8	0.6	17.7	1	0	961	0.00	4.5
27/12/2020 13:00	0.7	0.4	17.9	0	0	960	0.01	5.1
27/12/2020 14:00	0.7	0.5	17.9	0	0	960	0.00	4.8
27/12/2020 15:00	0.6	0.4	18.0	0	0	959	0.00	5.5
27/12/2020 16:00	0.5	0.5	18.0	0	0	959	0.00	4.3
27/12/2020 17:00	0.5	0.7	17.8	0	0	959	0.01	3.1
27/12/2020 18:00	0.6	0.8	17.6	1	0	959	0.01	2.2
27/12/2020 19:00	0.7	1.0	17.5	1	0	959	0.01	1.7
27/12/2020 20:00	0.7	1.0	17.4	1	0	959	0.00	2.2
27/12/2020 21:00	0.7	1.1	17.3	1	0	959	0.00	2.2
27/12/2020 22:00	0.7	1.2	17.2	1	0	959	-0.01	2.1
27/12/2020 23:00	0.7	1.2	17.1	1	0	959	0.00	1.6
28/12/2020 00:00	0.7	1.3	17.0	1	0	959	0.00	1.6
28/12/2020 01:00	0.8	1.4	16.9	1	0	959	-0.01	1.1
28/12/2020 02:00	0.8	1.4	16.7	1	0	958	0.00	0.9
28/12/2020 03:00	0.8	1.5	16.6	1	0	958	0.00	1.0
28/12/2020 04:00	0.7	1.5	16.6	1	0	958	0.00	1.3
28/12/2020 05:00	0.8	1.5	16.5	1	0	958	0.00	1.7
28/12/2020 06:00	0.7	1.6	16.5	1	0	959	0.00	1.7
28/12/2020 07:00	0.7	1.6	16.5	1	0	961	0.00	1.7
28/12/2020 08:00	0.8	1.6	16.4	1	0	961	0.00	1.7
28/12/2020 09:00	0.7	1.6	16.4	1	0	963	0.00	1.8
28/12/2020 10:00	0.7	1.7	16.5	1	0	964	0.00	2.1
28/12/2020 11:00	0.7	1.7	16.4	1	0	965	-0.01	2.5
28/12/2020 12:00	0.6	1.7	16.4	1	0	966	-0.01	3.0
28/12/2020 13:00	0.5	1.6	16.5	1	0	966	-0.01	3.7
28/12/2020 14:00	0.3	1.6	16.6	1	0	967	-0.01	3.8
28/12/2020 15:00	0.4	1.6	16.6	1	0	968	-0.01	3.6
28/12/2020 16:00	0.2	1.6	16.6	1	0	968	-0.01	3.1
28/12/2020 17:00	0.3	1.6	16.6	1	0	969	-0.01	2.7
28/12/2020 18:00	0.4	1.7	16.5	1	0	969	-0.01	1.8
28/12/2020 19:00	0.2	1.7	16.4	1	0	970	-0.01	1.5
28/12/2020 20:00	0.3	1.7	16.3	1	0	970	0.00	1.6
28/12/2020 21:00	0.4	1.7	16.3	1	0	971	-0.01	1.9
28/12/2020 22:00	0.3	1.7	16.3	1	0	972	-0.01	1.9
28/12/2020 23:00	0.3	1.7	16.3	1	0	972	0.00	1.9
29/12/2020 00:00	0.3	1.7	16.2	1	0	972	-0.01	1.1
29/12/2020 01:00	0.4	1.7	16.2	1	0	973	-0.01	1.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
29/12/2020 02:00	0.3	1.7	16.1	1	0	973	0.00	1.2
29/12/2020 03:00	0.3	1.7	16.1	1	0	974	0.00	0.8
29/12/2020 04:00	0.4	1.8	16.0	1	0	975	-0.01	-0.1
29/12/2020 05:00	0.6	1.8	16.0	1	0	975	-0.01	-0.3
29/12/2020 06:00	0.6	1.8	15.9	1	0	975	-0.02	0.0
29/12/2020 07:00	0.5	1.8	15.9	1	0	976	-0.01	0.1
29/12/2020 08:00	0.5	1.8	15.9	1	0	977	-0.02	0.7
29/12/2020 09:00	0.5	1.8	16.0	1	0	978	-0.01	0.8
29/12/2020 10:00	0.4	1.8	16.0	1	0	979	-0.01	1.3
29/12/2020 11:00	0.2	1.7	16.1	1	0	980	-0.01	2.0
29/12/2020 12:00	0.0	1.7	16.3	1	0	981	-0.01	3.0
29/12/2020 13:00	0.0	1.6	16.4	1	0	982	-0.03	3.6
29/12/2020 14:00	0.2	1.6	16.6	1	0	983	-0.02	3.5
29/12/2020 15:00	0.1	1.6	16.6	1	0	984	-0.02	2.6
29/12/2020 16:00	0.3	1.7	16.5	1	0	985	-0.02	1.6
29/12/2020 17:00	0.4	1.8	16.4	1	0	986	-0.02	0.9
29/12/2020 18:00	0.5	1.8	16.2	1	0	986	-0.02	0.2
29/12/2020 19:00	0.3	1.9	16.1	1	0	987	-0.02	-0.9
29/12/2020 20:00	0.3	1.9	15.9	1	0	987	-0.02	-1.6
29/12/2020 21:00	0.2	1.9	15.8	1	0	988	-0.02	-2.0
29/12/2020 22:00	0.2	1.9	15.7	1	0	988	-0.03	-2.4
29/12/2020 23:00	0.2	1.9	15.6	1	0	989	-0.03	-2.7
30/12/2020 00:00	0.0	2.0	15.5	1	0	989	-0.02	-2.7
30/12/2020 01:00	0.1	2.0	15.5	1	0	989	-0.03	-1.7
30/12/2020 02:00	0.1	2.0	15.5	1	0	989	-0.03	-1.1
30/12/2020 03:00	NM	2.0	15.6	1	0	989	-0.03	-0.8
30/12/2020 04:00	NM	2.0	15.6	1	0	989	-0.03	-0.6
30/12/2020 05:00	NM	1.9	15.6	1	0	990	-0.03	-0.3
30/12/2020 06:00	NM	2.0	15.7	1	0	990	-0.03	0.0
30/12/2020 07:00	NM	2.0	15.7	1	0	990	-0.02	0.1
30/12/2020 08:00	NM	2.0	15.7	1	0	990	-0.03	0.1
30/12/2020 09:00	NM	2.0	15.7	1	0	991	-0.02	0.4
30/12/2020 10:00	NM	2.0	15.8	1	0	991	-0.03	0.7
30/12/2020 11:00	NM	2.0	15.8	1	0	992	-0.03	1.4
30/12/2020 12:00	NM	2.0	15.9	1	0	991	-0.02	2.1
30/12/2020 13:00	NM	2.0	16.0	1	0	991	-0.02	2.4
30/12/2020 14:00	NM	2.0	16.0	1	0	992	-0.01	3.0
30/12/2020 15:00	NM	2.0	16.1	1	0	992	-0.02	2.9
30/12/2020 16:00	NM	1.9	16.1	1	0	992	-0.02	2.3
30/12/2020 17:00	NM	2.0	16.1	1	0	992	-0.02	2.1
30/12/2020 18:00	NM	2.0	16.0	1	0	993	-0.03	1.8
30/12/2020 19:00	NM	2.0	16.0	1	0	993	-0.03	1.6
30/12/2020 20:00	NM	2.1	16.0	1	0	993	-0.02	1.3
30/12/2020 21:00	NM	2.1	15.9	1	0	993	-0.03	1.0
30/12/2020 22:00	NM	2.1	15.9	1	0	993	-0.03	0.7
30/12/2020 23:00	NM	2.2	15.8	1	0	993	-0.02	0.5
31/12/2020 00:00	NM	2.2	15.8	1	0	993	-0.02	0.4
31/12/2020 01:00	NM	2.1	15.8	1	0	993	-0.02	0.3
31/12/2020 02:00	NM	2.2	15.7	1	0	993	-0.03	0.4
31/12/2020 03:00	NM	2.2	15.7	1	0	993	-0.02	0.5
31/12/2020 04:00	NM	2.2	15.7	1	0	993	-0.03	0.6
31/12/2020 05:00	NM	2.2	15.7	1	0	993	-0.02	0.7
31/12/2020 06:00	NM	2.2	15.7	1	0	993	-0.02	0.7
31/12/2020 07:00	NM	2.1	15.8	1	0	993	-0.02	0.8
31/12/2020 08:00	NM	2.2	15.7	1	0	993	-0.02	0.7
31/12/2020 09:00	NM	2.1	15.7	1	0	994	-0.02	0.8
31/12/2020 10:00	NM	2.1	15.8	1	0	994	-0.02	0.9
31/12/2020 11:00	NM	2.1	15.8	1	0	994	-0.02	1.0
31/12/2020 12:00	NM	2.1	15.9	1	0	994	-0.01	1.3
31/12/2020 13:00	NM	2.1	15.9	1	0	994	-0.02	2.6
31/12/2020 14:00	NM	2.1	16.0	1	0	994	-0.02	2.9
31/12/2020 15:00	NM	2.2	16.0	1	0	994	-0.02	2.9
31/12/2020 16:00	NM	2.1	16.0	1	0	995	-0.02	2.2
31/12/2020 17:00	NM	2.2	15.9	1	0	996	-0.02	1.6
31/12/2020 18:00	NM	2.2	15.9	1	0	996	-0.03	1.5
31/12/2020 19:00	NM	2.2	15.9	1	0	996	-0.02	1.3
31/12/2020 20:00	NM	2.2	15.8	1	0	997	-0.02	1.1
31/12/2020 21:00	NM	2.2	15.8	1	0	998	-0.03	1.0
31/12/2020 22:00	NM	2.2	15.7	1	0	998	-0.03	0.7
31/12/2020 23:00	NM	2.3	15.7	1	0	999	-0.02	0.9
01/01/2021 00:00	NM	2.3	15.6	1	0	999	-0.02	0.9
01/01/2021 01:00	NM	2.3	15.6	1	0	999	-0.02	0.9
01/01/2021 02:00	NM	2.4	15.6	1	0	999	-0.02	0.8
01/01/2021 03:00	NM	2.3	15.6	1	0	1000	-0.03	0.8
01/01/2021 04:00	NM	2.3	15.6	1	0	1000	-0.03	0.9
01/01/2021 05:00	NM	2.4	15.6	1	0	1000	-0.02	0.9
01/01/2021 06:00	NM	2.4	15.6	1	0	1000	-0.02	0.9
01/01/2021 07:00	NM	2.4	15.6	1	0	1000	-0.03	0.8
01/01/2021 08:00	NM	2.5	15.5	1	0	1001	-0.02	0.0
01/01/2021 09:00	NM	2.6	15.4	1	0	1002	-0.03	-0.3
01/01/2021 10:00	NM	2.6	15.4	1	0	1002	-0.03	0.5
01/01/2021 11:00	NM	2.6	15.5	1	0	1002	-0.03	1.9
01/01/2021 12:00	NM	2.4	15.8	1	0	1003	-0.02	3.4
01/01/2021 13:00	NM	2.3	16.1	1	0	1002	-0.02	3.9
01/01/2021 14:00	NM	2.2	16.2	1	0	1002	-0.03	4.0
01/01/2021 15:00	NM	2.1	16.4	1	0	1003	-0.02	3.7
01/01/2021 16:00	NM	2.2	16.3	1	0	1003	-0.03	2.9
01/01/2021 17:00	NM	2.4	16.0	1	0	1003	-0.02	1.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
01/01/2021 18:00	NM	2.6	15.8	1	0	1004	-0.03	0.4
01/01/2021 19:00	NM	2.7	15.6	1	0	1004	-0.03	-0.7
01/01/2021 20:00	NM	2.7	15.4	1	0	1005	-0.03	-1.5
01/01/2021 21:00	NM	2.8	15.3	1	0	1005	-0.03	-1.7
01/01/2021 22:00	NM	2.9	15.2	1	0	1006	-0.03	-2.2
01/01/2021 23:00	NM	2.9	15.1	1	0	1006	-0.03	-2.7
02/01/2021 00:00	NM	3.0	15.0	1	0	1006	-0.03	-2.7
02/01/2021 01:00	NM	3.2	14.9	1	0	1006	-0.03	-3.1
02/01/2021 02:00	NM	3.1	14.8	1	0	1007	-0.03	-3.0
02/01/2021 03:00	NM	3.1	14.8	1	0	1007	-0.03	-3.5
02/01/2021 04:00	NM	3.2	14.7	1	0	1007	-0.03	-3.9
02/01/2021 05:00	NM	3.2	14.7	1	0	1006	-0.03	-4.0
02/01/2021 06:00	NM	3.3	14.6	1	0	1006	-0.03	-4.3
02/01/2021 07:00	NM	3.4	14.5	1	0	1006	-0.03	-4.5
02/01/2021 08:00	NM	3.4	14.5	1	0	1006	-0.03	-4.6
02/01/2021 09:00	NM	3.4	14.5	1	0	1006	-0.03	-3.6
02/01/2021 10:00	NM	3.4	14.6	1	0	1006	-0.03	-2.2
02/01/2021 11:00	NM	3.5	14.7	1	0	1006	-0.03	-1.2
02/01/2021 12:00	NM	3.4	14.9	1	0	1006	-0.03	0.9
02/01/2021 13:00	NM	3.4	15.1	1	0	1006	-0.02	2.7
02/01/2021 14:00	NM	3.3	15.5	1	0	1006	-0.02	2.3
02/01/2021 15:00	NM	3.3	15.6	1	0	1006	-0.03	1.3
02/01/2021 16:00	NM	3.2	15.6	1	0	1006	-0.03	1.0
02/01/2021 17:00	NM	3.3	15.5	1	0	1007	-0.02	0.8
02/01/2021 18:00	NM	3.3	15.5	1	0	1007	-0.03	0.7
02/01/2021 19:00	NM	3.2	15.4	1	0	1007	-0.03	0.2
02/01/2021 20:00	NM	3.3	15.3	1	0	1008	-0.02	-0.3
02/01/2021 21:00	NM	3.3	15.3	1	0	1008	-0.03	-0.6
02/01/2021 22:00	NM	3.3	15.2	1	0	1008	-0.03	-0.5
02/01/2021 23:00	NM	3.2	15.3	1	0	1008	-0.03	-0.2
03/01/2021 00:00	NM	3.3	15.3	1	0	1009	-0.02	-0.5
03/01/2021 01:00	NM	3.3	15.2	1	0	1009	-0.03	-0.5
03/01/2021 02:00	NM	3.4	15.2	1	0	1009	-0.03	-0.3
03/01/2021 03:00	NM	3.4	15.2	1	0	1009	-0.02	0.0
03/01/2021 04:00	NM	3.4	15.3	1	0	1009	-0.03	-0.4
03/01/2021 05:00	NM	3.5	15.2	1	0	1009	-0.02	-0.6
03/01/2021 06:00	NM	3.4	15.2	1	0	1009	-0.02	-0.5
03/01/2021 07:00	NM	3.4	15.3	1	0	1009	-0.02	-0.6
03/01/2021 08:00	NM	3.4	15.2	1	0	1009	-0.02	-0.6
03/01/2021 09:00	NM	3.4	15.3	1	0	1010	-0.03	-0.4
03/01/2021 10:00	NM	3.4	15.3	1	0	1010	-0.03	0.1
03/01/2021 11:00	NM	3.5	15.4	1	0	1011	-0.02	2.0
03/01/2021 12:00	NM	3.4	15.6	1	0	1010	-0.03	4.2
03/01/2021 13:00	NM	3.4	15.9	0	0	1010	-0.03	5.0
03/01/2021 14:00	NM	3.5	16.1	0	0	1010	-0.02	4.0
03/01/2021 15:00	NM	3.4	16.2	0	0	1011	-0.03	3.5
03/01/2021 16:00	NM	3.4	16.1	0	0	1011	-0.02	2.5
03/01/2021 17:00	NM	3.3	16.0	0	0	1011	-0.03	1.6
03/01/2021 18:00	NM	3.4	15.9	1	0	1011	-0.03	1.4
03/01/2021 19:00	NM	3.5	15.7	1	0	1012	-0.02	0.9
03/01/2021 20:00	NM	3.5	15.6	1	0	1013	-0.02	0.5
03/01/2021 21:00	NM	3.6	15.6	1	0	1013	-0.02	-0.1
03/01/2021 22:00	NM	3.6	15.5	1	0	1013	-0.02	-0.3
03/01/2021 23:00	NM	3.6	15.4	1	0	1014	-0.02	-1.0
04/01/2021 00:00	NM	3.8	15.3	1	0	1014	-0.03	-0.2
04/01/2021 01:00	NM	3.8	15.4	1	0	1014	-0.03	-0.2
04/01/2021 02:00	NM	3.6	15.4	1	0	1014	-0.03	0.0
04/01/2021 03:00	NM	3.7	15.4	1	0	1014	-0.02	-0.7
04/01/2021 04:00	NM	3.8	15.3	1	0	1014	-0.02	-1.2
04/01/2021 05:00	NM	3.9	15.2	1	0	1014	-0.03	-1.4
04/01/2021 06:00	NM	3.9	15.2	1	0	1014	-0.02	-0.7
04/01/2021 07:00	NM	3.9	15.3	1	0	1014	-0.03	-0.2
04/01/2021 08:00	NM	3.8	15.3	1	0	1014	-0.03	-0.4
04/01/2021 09:00	NM	3.7	15.4	1	0	1015	-0.02	-0.1
04/01/2021 10:00	NM	3.8	15.4	1	0	1015	-0.03	0.3
04/01/2021 11:00	NM	3.7	15.5	1	0	1015	-0.03	1.8
04/01/2021 12:00	NM	3.8	15.6	1	0	1015	-0.02	2.3
04/01/2021 13:00	NM	3.8	15.7	1	0	1015	-0.02	3.0
04/01/2021 14:00	NM	3.6	15.9	1	0	1014	-0.02	3.5
04/01/2021 15:00	NM	3.5	16.0	1	0	1014	-0.02	3.2
04/01/2021 16:00	NM	3.6	16.0	1	0	1014	-0.02	2.6
04/01/2021 17:00	NM	3.5	16.0	1	0	1015	-0.03	2.0
04/01/2021 18:00	NM	3.6	15.9	1	0	1015	-0.03	1.5
04/01/2021 19:00	NM	3.5	15.8	1	0	1015	-0.02	1.5
04/01/2021 20:00	NM	3.6	15.7	1	0	1015	-0.03	1.2
04/01/2021 21:00	NM	3.7	15.6	1	0	1015	-0.03	1.0
04/01/2021 22:00	NM	3.7	15.6	1	0	1015	-0.03	1.3
04/01/2021 23:00	NM	3.6	15.7	1	0	1015	-0.03	1.3
05/01/2021 00:00	NM	3.6	15.7	1	0	1015	-0.02	1.4
05/01/2021 01:00	NM	3.7	15.7	1	0	1015	-0.03	1.2
05/01/2021 02:00	NM	3.6	15.7	1	0	1015	-0.03	0.8
05/01/2021 03:00	NM	3.6	15.7	1	0	1014	-0.02	0.6
05/01/2021 04:00	NM	3.6	15.7	1	0	1014	-0.03	0.2
05/01/2021 05:00	NM	3.6	15.6	1	0	1014	-0.03	0.4
05/01/2021 06:00	NM	3.6	15.6	1	0	1014	-0.02	0.7
05/01/2021 07:00	NM	3.7	15.6	1	0	1014	-0.02	0.7
05/01/2021 08:00	NM	3.6	15.7	1	0	1014	-0.03	0.8
05/01/2021 09:00	NM	3.5	15.8	1	0	1015	-0.03	0.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
05/01/2021 10:00	NM	3.3	15.8	1	0	1015	-0.02	1.4
05/01/2021 11:00	NM	3.2	15.9	1	0	1015	-0.02	1.9
05/01/2021 12:00	NM	3.0	16.0	1	0	1015	-0.02	3.2
05/01/2021 13:00	0.1	2.9	16.3	0	0	1014	-0.03	4.8
05/01/2021 14:00	0.3	2.7	16.6	0	0	1014	-0.03	4.9
05/01/2021 15:00	0.3	2.6	16.6	0	0	1014	-0.02	4.0
05/01/2021 16:00	0.3	2.6	16.6	0	0	1014	-0.02	2.6
05/01/2021 17:00	0.0	2.6	16.4	0	0	1014	-0.03	2.1
05/01/2021 18:00	NM	2.6	16.3	1	0	1014	-0.02	1.4
05/01/2021 19:00	NM	2.6	16.2	1	0	1014	-0.03	1.4
05/01/2021 20:00	NM	2.5	16.2	1	0	1015	-0.03	1.4
05/01/2021 21:00	NM	2.6	16.1	1	0	1014	-0.02	1.4
05/01/2021 22:00	NM	2.6	16.0	1	0	1014	-0.03	0.7
05/01/2021 23:00	NM	2.7	15.9	1	0	1014	-0.03	0.1
06/01/2021 00:00	NM	2.8	15.9	1	0	1014	-0.03	-0.5
06/01/2021 01:00	NM	2.8	15.8	1	0	1014	-0.03	-0.6
06/01/2021 02:00	NM	3.0	15.6	1	0	1014	-0.03	-1.6
06/01/2021 03:00	NM	3.1	15.6	1	0	1014	-0.03	-1.9
06/01/2021 04:00	NM	3.0	15.5	1	0	1013	-0.03	-0.8
06/01/2021 05:00	NM	2.9	15.6	1	0	1013	-0.03	-0.3
06/01/2021 06:00	NM	2.8	15.6	1	0	1012	-0.03	-0.5
06/01/2021 07:00	NM	2.8	15.6	1	0	1012	-0.02	-1.0
06/01/2021 08:00	NM	2.9	15.6	1	0	1013	-0.02	-1.6
06/01/2021 09:00	NM	3.0	15.5	1	0	1013	-0.02	-1.8
06/01/2021 10:00	NM	2.9	15.5	1	0	1013	-0.03	-0.8
06/01/2021 11:00	NM	2.9	15.6	1	0	1013	-0.03	0.0
06/01/2021 12:00	NM	2.9	15.8	1	0	1012	-0.03	2.9
06/01/2021 13:00	0.3	3.0	16.0	1	0	1011	-0.02	4.5
06/01/2021 14:00	0.8	2.9	16.4	0	0	1011	-0.03	3.5
06/01/2021 15:00	0.8	2.8	16.5	0	0	1011	-0.03	2.9
06/01/2021 16:00	0.7	2.8	16.4	0	0	1011	-0.03	1.8
06/01/2021 17:00	0.5	2.9	16.2	1	0	1011	-0.03	0.1
06/01/2021 18:00	0.3	3.0	15.9	1	0	1011	-0.03	-1.4
06/01/2021 19:00	0.0	3.2	15.7	1	0	1011	-0.03	-2.3
06/01/2021 20:00	NM	3.1	15.5	1	0	1011	-0.03	-2.9
06/01/2021 21:00	NM	3.3	15.3	1	0	1011	-0.03	-3.4
06/01/2021 22:00	NM	3.3	15.2	1	0	1010	-0.03	-3.9
06/01/2021 23:00	NM	3.3	15.1	1	0	1010	-0.03	-4.2
07/01/2021 00:00	NM	3.3	15.0	1	0	1010	-0.03	-4.5
07/01/2021 01:00	NM	3.5	15.2	1	0	1010	-0.02	-4.7
07/01/2021 02:00	NM	3.4	14.9	1	0	1009	-0.03	-5.0
07/01/2021 03:00	NM	3.4	14.8	1	0	1009	-0.03	-5.0
07/01/2021 04:00	NM	3.5	14.8	1	0	1009	-0.03	-3.6
07/01/2021 05:00	NM	3.3	14.9	1	0	1008	-0.03	-2.6
07/01/2021 06:00	NM	3.3	15.0	1	0	1008	-0.03	-2.0
07/01/2021 07:00	NM	3.2	15.1	1	0	1008	-0.02	-1.6
07/01/2021 08:00	NM	2.4	15.4	1	0	1008	-0.03	-1.3
07/01/2021 09:00	NM	2.0	15.5	1	0	1008	-0.02	-1.0
07/01/2021 10:00	NM	2.0	15.6	1	0	1008	-0.03	-0.6
07/01/2021 11:00	0.0	1.9	15.7	1	0	1008	-0.02	0.1
07/01/2021 12:00	0.4	1.9	15.8	1	0	1007	-0.03	0.7
07/01/2021 13:00	0.2	1.8	15.9	1	0	1007	-0.03	1.2
07/01/2021 14:00	0.4	1.8	16.0	1	0	1006	-0.03	1.5
07/01/2021 15:00	0.6	1.8	16.0	1	0	1006	-0.03	1.0
07/01/2021 16:00	0.6	1.8	16.0	1	0	1006	-0.03	0.8
07/01/2021 17:00	0.5	1.8	16.0	1	0	1006	-0.02	0.5
07/01/2021 18:00	0.6	1.7	16.0	1	0	1006	-0.03	0.5
07/01/2021 19:00	0.6	1.8	16.0	1	0	1006	-0.03	0.5
07/01/2021 20:00	0.5	1.7	16.0	1	0	1006	-0.03	0.5
07/01/2021 21:00	0.6	1.7	16.0	1	0	1006	-0.02	0.5
07/01/2021 22:00	0.5	1.6	16.0	1	0	1006	-0.02	0.6
07/01/2021 23:00	0.5	1.7	16.0	1	0	1006	-0.03	0.4
08/01/2021 00:00	0.5	1.7	16.0	1	0	1006	-0.02	0.4
08/01/2021 01:00	0.6	1.7	15.9	1	0	1006	-0.03	0.4
08/01/2021 02:00	0.5	1.6	16.0	1	0	1005	-0.02	0.5
08/01/2021 03:00	0.7	1.7	16.0	1	0	1006	-0.03	0.5
08/01/2021 04:00	0.7	1.6	16.0	1	0	1006	-0.03	0.6
08/01/2021 05:00	0.7	1.6	16.0	1	0	1005	-0.03	0.5
08/01/2021 06:00	0.6	1.6	16.0	1	0	1006	-0.03	0.6
08/01/2021 07:00	0.6	1.6	16.1	1	0	1006	-0.03	0.7
08/01/2021 08:00	0.7	1.5	16.2	1	0	1006	-0.03	0.6
08/01/2021 09:00	0.6	1.5	16.2	1	0	1007	-0.03	0.7
08/01/2021 10:00	0.8	1.4	16.3	1	0	1007	-0.02	1.3
08/01/2021 11:00	0.7	1.3	16.4	1	0	1008	-0.03	1.8
08/01/2021 12:00	0.9	1.3	16.5	1	0	1008	-0.03	2.4
08/01/2021 13:00	0.9	1.3	16.7	1	0	1008	-0.03	2.9
08/01/2021 14:00	0.9	1.3	16.7	1	0	1008	-0.03	3.0
08/01/2021 15:00	0.9	1.3	16.8	1	0	1009	-0.03	2.9
08/01/2021 16:00	1.0	1.3	16.8	1	0	1010	-0.03	2.4
08/01/2021 17:00	0.9	1.4	16.7	1	0	1010	-0.03	2.1
08/01/2021 18:00	1.0	1.4	16.6	1	0	1011	-0.03	1.5
08/01/2021 19:00	1.0	1.4	16.5	1	0	1011	-0.03	1.1
08/01/2021 20:00	0.8	1.4	16.5	1	0	1012	-0.03	1.2
08/01/2021 21:00	0.9	1.4	16.5	1	0	1012	-0.03	1.3
08/01/2021 22:00	1.0	1.4	16.5	1	0	1013	-0.03	0.9
08/01/2021 23:00	0.9	1.5	16.4	1	0	1013	-0.03	0.9
09/01/2021 00:00	0.9	1.5	16.4	1	0	1013	-0.02	0.6
09/01/2021 01:00	0.9	1.6	16.3	1	0	1014	-0.03	0.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
09/01/2021 02:00	0.9	1.6	16.3	1	0	1014	-0.03	0.6
09/01/2021 03:00	0.9	1.5	16.3	1	0	1014	-0.03	0.6
09/01/2021 04:00	1.0	1.6	16.3	1	0	1014	-0.02	-0.1
09/01/2021 05:00	0.9	1.6	16.2	1	0	1015	-0.03	-1.2
09/01/2021 06:00	0.8	1.6	16.1	1	0	1015	-0.03	-1.3
09/01/2021 07:00	0.7	1.6	16.0	1	0	1015	-0.02	-1.6
09/01/2021 08:00	0.7	1.6	15.9	1	0	1015	-0.03	-1.7
09/01/2021 09:00	0.7	1.6	15.9	1	0	1016	-0.03	-2.3
09/01/2021 10:00	0.8	1.6	15.9	1	0	1016	-0.02	-0.8
09/01/2021 11:00	0.8	1.6	15.9	1	0	1016	-0.03	0.2
09/01/2021 12:00	0.9	1.6	16.0	1	0	1016	-0.03	1.2
09/01/2021 13:00	1.0	1.6	16.2	1	0	1016	-0.03	2.3
09/01/2021 14:00	1.0	1.5	16.4	1	0	1015	-0.04	2.2
09/01/2021 15:00	1.0	1.4	16.7	1	0	1015	-0.02	2.3
09/01/2021 16:00	1.0	1.4	16.6	1	0	1015	-0.02	1.1
09/01/2021 17:00	1.0	1.5	16.6	1	0	1015	-0.03	1.1
09/01/2021 18:00	1.0	1.5	16.5	1	0	1015	-0.03	0.8
09/01/2021 19:00	1.0	1.5	16.4	1	0	1015	-0.03	0.7
09/01/2021 20:00	1.0	1.5	16.3	1	0	1015	-0.02	-0.2
09/01/2021 21:00	1.0	1.6	16.1	1	0	1015	-0.03	-0.8
09/01/2021 22:00	0.9	1.6	16.1	1	0	1015	-0.03	-0.6
09/01/2021 23:00	1.0	1.6	16.0	1	0	1015	-0.03	-0.7
10/01/2021 00:00	1.0	1.6	16.0	1	0	1015	-0.03	-0.1
10/01/2021 01:00	1.0	1.6	16.0	1	0	1015	-0.03	0.2
10/01/2021 02:00	1.0	1.6	16.0	1	0	1014	-0.03	0.4
10/01/2021 03:00	1.0	1.6	16.0	1	0	1015	-0.03	0.6
10/01/2021 04:00	1.0	1.6	16.0	1	0	1014	-0.03	0.7
10/01/2021 05:00	1.0	1.6	16.1	1	0	1014	-0.03	0.9
10/01/2021 06:00	1.0	1.7	16.1	1	0	1014	-0.03	1.2
10/01/2021 07:00	1.0	1.6	16.1	1	0	1014	-0.03	1.1
10/01/2021 08:00	1.0	1.6	16.1	1	0	1014	-0.04	1.3
10/01/2021 09:00	1.0	1.6	16.1	1	0	1014	-0.03	1.4
10/01/2021 10:00	1.0	1.6	16.2	1	0	1014	-0.03	1.7
10/01/2021 11:00	1.0	1.5	16.3	1	0	1014	-0.03	2.3
10/01/2021 12:00	1.0	1.5	16.3	1	0	1014	-0.03	2.7
10/01/2021 13:00	1.1	1.4	16.5	1	0	1013	-0.03	3.0
10/01/2021 14:00	1.1	1.4	16.6	1	0	1012	-0.03	3.5
10/01/2021 15:00	1.1	1.3	16.7	1	0	1012	-0.02	3.7
10/01/2021 16:00	1.1	1.2	16.8	1	0	1012	-0.03	3.8
10/01/2021 17:00	1.1	1.0	17.1	1	0	1011	-0.03	3.8
10/01/2021 18:00	1.2	1.0	17.1	1	0	1011	-0.03	4.0
10/01/2021 19:00	1.2	1.1	17.1	1	0	1011	-0.03	3.9
10/01/2021 20:00	1.2	1.1	17.0	1	0	1010	-0.03	3.9
10/01/2021 21:00	1.2	1.1	17.0	1	0	1010	-0.03	3.8
10/01/2021 22:00	1.3	1.0	17.1	1	0	1010	-0.03	3.8
10/01/2021 23:00	1.3	0.9	17.2	1	0	1010	-0.03	3.9
11/01/2021 00:00	1.2	1.0	17.2	1	0	1009	-0.02	3.9
11/01/2021 01:00	1.3	1.0	17.2	1	0	1008	-0.03	3.8
11/01/2021 02:00	1.3	0.9	17.3	0	0	1008	-0.03	3.9
11/01/2021 03:00	1.3	0.7	17.5	1	0	1007	-0.03	3.9
11/01/2021 04:00	1.3	0.6	17.7	0	0	1007	-0.03	3.9
11/01/2021 05:00	1.3	0.4	17.9	0	0	1006	-0.03	4.1
11/01/2021 06:00	1.4	0.3	18.0	0	0	1005	-0.02	4.2
11/01/2021 07:00	1.4	0.3	18.0	0	0	1005	-0.03	4.3
11/01/2021 08:00	1.5	0.3	18.0	0	0	1004	-0.03	4.4
11/01/2021 09:00	1.5	0.4	17.9	0	0	1004	-0.03	4.3
11/01/2021 10:00	1.4	0.4	17.9	0	0	1004	-0.02	4.5
11/01/2021 11:00	1.5	0.5	17.9	0	0	1003	-0.02	4.7
11/01/2021 12:00	1.5	0.4	17.9	0	0	1003	-0.02	5.0
11/01/2021 13:00	1.7	0.3	18.1	0	0	1002	-0.02	5.3
11/01/2021 14:00	1.6	0.3	18.2	0	0	1001	-0.03	5.6
11/01/2021 15:00	1.7	0.2	18.3	0	0	1000	-0.03	6.0
11/01/2021 16:00	1.8	0.2	18.4	0	0	999	-0.02	6.3
11/01/2021 17:00	1.8	0.2	18.5	0	0	999	-0.03	6.5
11/01/2021 18:00	1.9	0.1	18.5	0	0	998	-0.03	6.6
11/01/2021 19:00	2.0	0.1	18.5	0	0	998	-0.03	6.8
11/01/2021 20:00	2.2	0.1	18.6	0	0	997	-0.03	6.9
11/01/2021 21:00	2.2	0.1	18.6	0	0	997	-0.02	6.8
11/01/2021 22:00	2.1	0.2	18.6	0	0	997	-0.03	6.7
11/01/2021 23:00	2.2	0.2	18.5	0	0	996	-0.03	6.5
12/01/2021 00:00	2.1	0.2	18.5	0	0	996	-0.02	6.4
12/01/2021 01:00	2.0	0.3	18.4	0	0	996	-0.02	6.3
12/01/2021 02:00	2.2	0.5	18.2	0	0	996	-0.03	6.3
12/01/2021 03:00	2.0	0.8	18.1	0	0	997	-0.03	6.2
12/01/2021 04:00	2.1	1.0	18.0	0	0	997	-0.03	6.2
12/01/2021 05:00	2.1	1.1	18.0	0	0	998	-0.03	5.8
12/01/2021 06:00	1.9	1.3	17.9	0	0	998	-0.03	5.5
12/01/2021 07:00	2.0	1.8	17.6	0	0	1000	-0.03	4.8
12/01/2021 08:00	1.8	2.1	17.4	0	0	1001	-0.03	4.0
12/01/2021 09:00	1.8	2.3	17.2	0	0	1002	-0.03	2.4
12/01/2021 10:00	1.5	2.5	17.0	1	0	1003	-0.03	1.6
12/01/2021 11:00	1.5	2.5	17.0	1	0	1004	-0.03	3.3

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS105
Instrument ID:	GC #00127/03/10 FD #030700016
Start Date:	21/12/2020 14:24
End Date:	12/01/2021 11:57

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	509

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Borehole Pressure	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	18.7	0	0	957	955	-0.05	-0.1
Maximum	0.0	0.2	19.9	1	0	1020	1020	0.08	6.4
Range	0.0	0.2	1.2	1	0	63	65	0.12	6.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
21/12/2020 14:24	0.0	0.0	19.8	1	0	986	985	0.08	6.4
21/12/2020 15:24	0.0	0.0	19.9	1	0	986	985	0.05	5.5
21/12/2020 16:24	0.0	0.0	19.9	1	0	986	985	0.05	5.2
21/12/2020 17:24	0.0	0.0	19.8	0	0	986	985	0.05	5.1
21/12/2020 18:24	0.0	0.0	19.8	1	0	986	985	0.08	5.0
21/12/2020 19:24	0.0	0.0	19.7	0	0	986	985	0.05	5.1
21/12/2020 20:24	0.0	0.0	19.7	1	0	986	986	0.05	5.1
21/12/2020 21:24	0.0	0.0	19.6	1	0	987	986	0.05	5.1
21/12/2020 22:24	0.0	0.0	19.6	0	0	987	987	0.08	5.1
21/12/2020 23:24	0.0	0.0	19.6	1	0	988	988	0.05	5.2
22/12/2020 00:24	0.0	0.0	19.6	1	0	990	989	0.05	5.2
22/12/2020 01:24	0.0	0.0	19.6	1	0	991	991	0.05	5.3
22/12/2020 02:24	0.0	0.0	19.6	1	0	992	992	0.05	5.3
22/12/2020 03:24	0.0	0.0	19.6	0	0	994	993	0.08	5.3
22/12/2020 04:24	0.0	0.0	19.7	0	0	995	995	0.05	5.2
22/12/2020 05:24	0.0	0.0	19.6	1	0	995	995	-0.05	5.1
22/12/2020 06:24	0.0	0.0	19.7	1	0	997	996	0.05	5.0
22/12/2020 07:24	0.0	0.0	19.7	1	0	998	998	0.05	4.8
22/12/2020 08:24	0.0	0.0	19.7	1	0	999	998	0.05	4.7
22/12/2020 09:24	0.0	0.0	19.6	0	0	999	999	0.05	4.6
22/12/2020 10:24	0.0	0.0	19.6	0	0	1000	999	0.05	4.6
22/12/2020 11:24	0.0	0.0	19.6	1	0	1000	1000	0.05	4.5
22/12/2020 12:24	0.0	0.0	19.5	1	0	1000	999	0.05	4.5
22/12/2020 13:24	0.0	0.0	19.5	0	0	1000	999	0.08	4.5
22/12/2020 14:24	0.0	0.0	19.5	1	0	999	999	0.05	4.6
22/12/2020 15:24	0.0	0.0	19.5	1	0	1000	999	0.05	4.6
22/12/2020 16:24	0.0	0.0	19.6	1	0	1000	999	0.05	4.6
22/12/2020 17:24	0.0	0.0	19.5	0	0	999	999	0.05	4.5
22/12/2020 18:24	0.0	0.0	19.6	1	0	999	998	0.05	4.5
22/12/2020 19:24	0.0	0.0	19.6	1	0	998	998	0.08	4.4
22/12/2020 20:24	0.0	0.0	19.6	1	0	999	998	0.08	4.4
22/12/2020 21:24	0.0	0.0	19.6	0	0	999	998	0.05	4.3
22/12/2020 22:24	0.0	0.0	19.6	1	0	999	998	0.05	4.3
22/12/2020 23:24	0.0	0.0	19.5	0	0	998	997	0.05	4.3
23/12/2020 00:24	0.0	0.0	19.5	1	0	997	997	0.05	4.3
23/12/2020 01:24	0.0	0.0	19.5	1	0	997	996	0.05	4.3
23/12/2020 02:24	0.0	0.0	19.5	1	0	997	996	0.05	4.3
23/12/2020 03:24	0.0	0.0	19.5	1	0	996	995	0.05	4.3
23/12/2020 04:24	0.0	0.0	19.5	0	0	995	995	0.05	4.3
23/12/2020 05:24	0.0	0.0	19.5	1	0	995	995	0.05	4.2
23/12/2020 06:24	0.0	0.0	19.5	1	0	994	994	0.05	4.2
23/12/2020 07:24	0.0	0.0	19.5	1	0	994	993	0.05	4.2
23/12/2020 08:24	0.0	0.0	19.5	1	0	994	993	0.05	4.2
23/12/2020 09:24	0.0	0.0	19.6	0	0	994	993	0.05	4.2
23/12/2020 10:24	0.0	0.0	19.5	1	0	993	993	0.08	4.2
23/12/2020 11:24	0.0	0.0	19.6	0	0	993	992	0.05	4.2
23/12/2020 12:24	0.0	0.0	19.5	0	0	992	992	0.05	4.2
23/12/2020 13:24	0.0	0.0	19.6	1	0	992	992	0.05	4.3
23/12/2020 14:24	0.0	0.0	19.6	1	0	993	992	0.05	4.3
23/12/2020 15:24	0.0	0.0	19.6	1	0	993	993	0.05	4.3
23/12/2020 16:24	0.0	0.0	19.6	0	0	994	994	0.08	4.3
23/12/2020 17:24	0.0	0.0	19.7	1	0	995	995	0.05	4.3
23/12/2020 18:24	0.0	0.0	19.7	1	0	997	996	0.05	4.4
23/12/2020 19:24	0.0	0.0	19.7	1	0	998	998	0.05	4.4
23/12/2020 20:24	0.0	0.0	19.8	0	0	999	999	0.05	4.4
23/12/2020 21:24	0.0	0.0	19.7	0	0	1000	1000	0.05	4.4
23/12/2020 22:24	0.0	0.0	19.8	0	0	1001	1001	0.05	4.4
23/12/2020 23:24	0.0	0.0	19.8	1	0	1003	1002	0.05	4.4
24/12/2020 00:24	0.0	0.0	19.8	0	0	1004	1004	0.05	4.4
24/12/2020 01:24	0.0	0.0	19.8	0	0	1005	1005	0.05	4.3
24/12/2020 02:24	0.0	0.0	19.8	1	0	1006	1006	0.05	4.3
24/12/2020 03:24	0.0	0.0	19.8	1	0	1007	1007	0.05	4.1
24/12/2020 04:24	0.0	0.0	19.8	0	0	1008	1007	0.05	4.0
24/12/2020 05:24	0.0	0.0	19.7	0	0	1008	1008	0.05	3.9
24/12/2020 06:24	0.0	0.0	19.7	1	0	1009	1008	0.05	3.8
24/12/2020 07:24	0.0	0.0	19.7	0	0	1009	1009	0.05	3.6
24/12/2020 08:24	0.0	0.0	19.7	0	0	1010	1010	0.05	3.4
24/12/2020 09:24	0.0	0.0	19.7	1	0	1012	1011	0.05	3.3
24/12/2020 10:24	0.0	0.0	19.7	1	0	1013	1012	0.05	3.3
24/12/2020 11:24	0.0	0.0	19.6	0	0	1013	1013	0.05	3.2
24/12/2020 12:24	0.0	0.0	19.6	1	0	1014	1013	0.05	3.2
24/12/2020 13:24	0.0	0.0	19.6	0	0	1014	1014	0.08	3.2
24/12/2020 14:24	0.0	0.0	19.6	0	0	1015	1015	0.05	3.3
24/12/2020 15:24	0.0	0.0	19.6	1	0	1016	1016	0.05	3.2
24/12/2020 16:24	0.0	0.0	19.6	0	0	1016	1016	0.05	3.2
24/12/2020 17:24	0.0	0.0	19.6	0	0	1017	1017	0.05	3.1
24/12/2020 18:24	0.0	0.0	19.6	1	0	1018	1018	0.05	2.9
24/12/2020 19:24	0.0	0.0	19.6	1	0	1019	1018	0.05	2.8
24/12/2020 20:24	0.0	0.2	19.6	0	0	1019	1019	0.05	2.7
24/12/2020 21:24	0.0	0.1	19.6	1	0	1019	1019	0.05	2.6
24/12/2020 22:24	0.0	0.1	19.6	0	0	1019	1019	0.00	2.4
24/12/2020 23:24	0.0	0.1	19.5	1	0	1019	1019	0.05	2.4
25/12/2020 00:24	0.0	0.1	19.5	0	0	1020	1020	0.05	2.3
25/12/2020 01:24	0.0	0.0	19.5	0	0	1020	1020	0.05	2.1
25/12/2020 02:24	0.0	0.1	19.5	1	0	1019	1020	0.05	2.1
25/12/2020 03:24	0.0	0.1	19.5	0	0	1020	1020	0.05	2.0
25/12/2020 04:24	0.0	0.2	19.5	1	0	1020	1020	0.05	1.9
25/12/2020 05:24	0.0	0.2	19.5	0	0	1020	1020	0.05	1.8
25/12/2020 06:24	0.0	0.1	19.5	0	0	1020	1020	0.00	1.8
25/12/2020 07:24	0.0	0.2	19.4	1	0	1020	1020	0.00	1.7
25/12/2020 08:24	0.0	0.2	19.4	1	0	1020	1020	0.00	1.6
25/12/2020 09:24	0.0	0.1	19.4	0	0	1019	1019	0.00	1.6
25/12/2020 10:24	0.0	0.1	19.4	0	0	1019	1020	0.00	1.5
25/12/2020 11:24	0.0	0.1	19.4	1	0	1019	1019	0.00	1.4
25/12/2020 12:24	0.0	0.1	19.3	1	0	1019	1019	0.05	1.4
25/12/2020 13:24	0.0	0.2	19.3	1	0	1018	1018	0.05	1.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
25/12/2020 14:24	0.0	0.1	19.3	0	0	1018	1018	0.05	1.6
25/12/2020 15:24	0.0	0.0	19.3	0	0	1017	1017	0.05	1.6
25/12/2020 16:24	0.0	0.0	19.3	1	0	1016	1016	0.05	1.6
25/12/2020 17:24	0.0	0.0	19.3	1	0	1015	1015	0.05	1.6
25/12/2020 18:24	0.0	0.0	19.3	1	0	1015	1015	0.05	1.6
25/12/2020 19:24	0.0	0.0	19.3	1	0	1014	1014	0.05	1.6
25/12/2020 20:24	0.0	0.0	19.3	0	0	1013	1013	0.05	1.6
25/12/2020 21:24	0.0	0.0	19.3	1	0	1013	1013	0.05	1.6
25/12/2020 22:24	0.0	0.0	19.3	1	0	1012	1012	0.05	1.6
25/12/2020 23:24	0.0	0.0	19.3	0	0	1011	1011	0.05	1.6
26/12/2020 00:24	0.0	0.0	19.3	1	0	1010	1010	0.05	1.6
26/12/2020 01:24	0.0	0.0	19.3	0	0	1009	1009	0.05	1.6
26/12/2020 02:24	0.0	0.0	19.3	0	0	1008	1008	0.05	1.6
26/12/2020 03:24	0.0	0.0	19.2	1	0	1007	1007	0.05	1.6
26/12/2020 04:24	0.0	0.0	19.2	1	0	1006	1006	0.05	1.7
26/12/2020 05:24	0.0	0.0	19.2	1	0	1005	1004	0.05	1.8
26/12/2020 06:24	0.0	0.0	19.2	1	0	1004	1004	0.05	1.8
26/12/2020 07:24	0.0	0.0	19.2	1	0	1003	1003	0.05	1.8
26/12/2020 08:24	0.0	0.0	19.2	1	0	1003	1003	0.08	1.9
26/12/2020 09:24	0.0	0.0	19.1	0	0	1002	1002	0.05	1.9
26/12/2020 10:24	0.0	0.0	19.1	1	0	1000	1000	0.05	1.9
26/12/2020 11:24	0.0	0.0	19.1	0	0	999	998	0.05	2.0
26/12/2020 12:24	0.0	0.0	19.0	0	0	997	996	0.08	2.1
26/12/2020 13:24	0.0	0.0	18.9	1	0	995	994	0.05	2.1
26/12/2020 14:24	0.0	0.0	18.9	0	0	992	992	0.05	2.2
26/12/2020 15:24	0.0	0.0	18.9	1	0	990	989	0.05	2.3
26/12/2020 16:24	0.0	0.0	18.9	0	0	988	987	0.05	2.4
26/12/2020 17:24	0.0	0.0	18.8	1	0	985	985	0.05	2.4
26/12/2020 18:24	0.0	0.1	18.8	0	0	983	982	0.05	2.5
26/12/2020 19:24	0.0	0.1	18.8	1	0	980	979	0.05	2.6
26/12/2020 20:24	0.0	0.2	18.8	0	0	977	976	0.05	2.7
26/12/2020 21:24	0.0	0.2	18.7	1	0	974	973	0.08	2.8
26/12/2020 22:24	0.0	0.2	18.7	1	0	971	970	0.05	2.8
26/12/2020 23:24	0.0	0.2	18.7	1	0	968	967	0.05	2.9
27/12/2020 00:24	0.0	0.1	18.7	1	0	966	964	0.05	2.9
27/12/2020 01:24	0.0	0.2	19.0	1	0	965	962	0.05	3.0
27/12/2020 02:24	0.0	0.1	19.1	0	0	966	960	0.05	3.1
27/12/2020 03:24	0.0	0.2	19.2	1	0	966	960	0.05	3.2
27/12/2020 04:24	0.0	0.2	19.1	1	0	967	960	0.08	3.2
27/12/2020 05:24	0.0	0.0	19.2	0	0	967	959	0.05	3.3
27/12/2020 06:24	0.0	0.0	19.2	1	0	966	959	0.05	3.3
27/12/2020 07:24	0.0	0.0	19.2	1	0	966	959	0.05	3.3
27/12/2020 08:24	0.0	0.0	19.2	0	0	966	959	0.08	3.2
27/12/2020 09:24	0.0	0.2	19.2	1	0	965	959	0.05	3.1
27/12/2020 10:24	0.0	0.1	19.1	0	0	965	959	0.05	3.1
27/12/2020 11:24	0.0	0.1	19.1	0	0	963	958	0.05	3.1
27/12/2020 12:24	0.0	0.2	19.0	0	0	962	957	0.05	3.1
27/12/2020 13:24	0.0	0.1	19.0	1	0	962	956	0.05	3.1
27/12/2020 14:24	0.0	0.1	19.0	1	0	961	956	0.05	3.1
27/12/2020 15:24	0.0	0.2	19.0	1	0	961	956	0.08	3.2
27/12/2020 16:24	0.0	0.2	19.1	0	0	960	955	0.05	3.2
27/12/2020 17:24	0.0	0.1	19.1	1	0	959	955	0.08	3.2
27/12/2020 18:24	0.0	0.1	19.1	1	0	959	956	0.05	3.1
27/12/2020 19:24	0.0	0.1	19.1	0	0	959	956	0.05	3.1
27/12/2020 20:24	0.0	0.2	19.1	0	0	959	956	0.05	3.0
27/12/2020 21:24	0.0	0.1	19.1	1	0	959	956	0.05	3.0
27/12/2020 22:24	0.0	0.1	19.1	1	0	959	956	0.05	3.0
27/12/2020 23:24	0.0	0.2	19.1	0	0	959	956	0.05	2.9
28/12/2020 00:24	0.0	0.1	19.1	1	0	959	956	0.08	2.9
28/12/2020 01:24	0.0	0.1	19.0	0	0	958	955	0.05	2.8
28/12/2020 02:24	0.0	0.2	19.1	1	0	958	955	0.05	2.8
28/12/2020 03:24	0.0	0.1	19.0	1	0	957	955	0.00	2.7
28/12/2020 04:24	0.0	0.1	19.1	0	0	958	955	0.05	2.6
28/12/2020 05:24	0.0	0.1	19.1	0	0	958	956	0.05	2.6
28/12/2020 06:24	0.0	0.1	19.1	0	0	959	957	0.05	2.6
28/12/2020 07:24	0.0	0.1	19.1	0	0	960	958	0.05	2.6
28/12/2020 08:24	0.0	0.1	19.1	0	0	961	960	0.05	2.6
28/12/2020 09:24	0.0	0.2	19.1	0	0	962	961	0.05	2.5
28/12/2020 10:24	0.0	0.1	19.1	0	0	963	962	0.05	2.5
29/12/2020 04:57	0.0	0.1	19.1	0	0	972	972	0.05	2.1
29/12/2020 05:57	0.0	0.1	19.4	1	0	974	973	0.05	2.1
29/12/2020 06:57	0.0	0.1	19.3	0	0	974	973	0.05	2.0
29/12/2020 07:57	0.0	0.1	19.3	1	0	975	975	0.05	2.0
29/12/2020 08:57	0.0	0.1	19.3	0	0	976	976	0.05	1.9
29/12/2020 09:57	0.0	0.2	19.3	0	0	977	976	0.05	1.9
29/12/2020 10:57	0.0	0.1	19.3	0	0	978	978	0.05	1.9
29/12/2020 11:57	0.0	0.2	19.3	0	0	979	979	0.05	2.0
29/12/2020 12:57	0.0	0.2	19.3	1	0	980	980	0.05	2.0
29/12/2020 13:57	0.0	0.1	19.3	1	0	981	980	0.05	2.1
29/12/2020 14:57	0.0	0.2	19.3	1	0	982	981	0.05	2.1
29/12/2020 15:57	0.0	0.1	19.3	0	0	983	982	0.05	2.1
29/12/2020 16:57	0.0	0.2	19.4	1	0	984	983	0.05	2.1
29/12/2020 17:57	0.0	0.1	19.4	0	0	984	984	0.05	2.0
29/12/2020 18:57	0.0	0.1	19.3	0	0	985	984	0.05	1.9
29/12/2020 19:57	0.0	0.2	19.4	1	0	985	984	0.05	1.8
29/12/2020 20:57	0.0	0.2	19.3	1	0	986	985	0.05	1.6
29/12/2020 21:57	0.0	0.1	19.3	1	0	986	985	0.05	1.6
29/12/2020 22:57	0.0	0.2	19.3	1	0	986	986	0.00	1.4
29/12/2020 23:57	0.0	0.1	19.3	0	0	987	986	0.05	1.4
30/12/2020 00:57	0.0	0.1	19.3	0	0	987	986	0.05	1.4
30/12/2020 01:57	0.0	0.1	19.3	0	0	987	987	0.05	1.4
30/12/2020 02:57	0.0	0.1	19.3	1	0	987	987	0.05	1.4
30/12/2020 03:57	0.0	0.1	19.3	1	0	987	987	0.05	1.3
30/12/2020 04:57	0.0	0.2	19.3	1	0	988	987	0.05	1.3
30/12/2020 05:57	0.0	0.1	19.2	1	0	987	987	0.05	1.3
30/12/2020 06:57	0.0	0.1	19.3	0	0	988	987	0.05	1.3
30/12/2020 07:57	0.0	0.2	19.3	1	0	989	988	0.05	1.3
30/12/2020 08:57	0.0	0.1	19.3	1	0	989	989	0.05	1.3
30/12/2020 09:57	0.0	0.1	19.3	0	0	989	989	0.08	1.3
30/12/2020 10:57	0.0	0.2	19.3	1	0	989	989	0.05	1.3
30/12/2020 11:57	0.0	0.2	19.2	1	0	989	989	0.05	1.3
30/12/2020 12:57	0.0	0.1	19.2	1	0	989	988	0.05	1.3
30/12/2020 13:57	0.0	0.1	19.2	1	0	989	989	0.05	1.4
30/12/2020 14:57	0.0	0.1	19.3	0	0	990	989	0.05	1.4
30/12/2020 15:57	0.0	0.1	19.3	0	0	990	989	0.05	1.4
30/12/2020 16:57	0.0	0.1	19.3	0	0	990	990	0.05	1.4
30/12/2020 17:57	0.0	0.1	19.3	0	0	990	990	0.05	1.4
30/12/2020 18:57	0.0	0.1	19.3	1	0	990	990	0.05	1.4
30/12/2020 19:57	0.0	0.1	19.3	0	0	991	990	0.05	1.4
30/12/2020 20:57	0.0	0.2	19.3	1	0	991	990	0.05	1.4
30/12/2020 21:57	0.0	0.1	19.3	0	0	991	991	0.05	1.4
30/12/2020 22:57	0.0	0.1	19.3	0	0	991	991	0.05	1.3
30/12/2020 23:57	0.0	0.1	19.3	1	0	991	991	0.05	1.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
31/12/2020 00:57	0.0	0.1	19.3	1	0	991	991	0.05	1.3
31/12/2020 01:57	0.0	0.2	19.3	0	0	991	991	0.05	1.3
31/12/2020 02:57	0.0	0.1	19.3	0	0	991	990	0.05	1.3
31/12/2020 03:57	0.0	0.1	19.3	1	0	991	990	0.05	1.2
31/12/2020 04:57	0.0	0.1	19.3	0	0	990	990	0.05	1.2
31/12/2020 05:57	0.0	0.1	19.3	0	0	991	990	0.05	1.2
31/12/2020 06:57	0.0	0.1	19.3	0	0	991	990	0.05	1.2
31/12/2020 07:57	0.0	0.1	19.3	0	0	991	991	0.05	1.2
31/12/2020 08:57	0.0	0.1	19.3	0	0	991	991	0.05	1.2
31/12/2020 09:57	0.0	0.2	19.3	0	0	992	991	0.08	1.2
31/12/2020 10:57	0.0	0.1	19.3	0	0	992	991	0.05	1.2
31/12/2020 11:57	0.0	0.1	19.3	0	0	992	991	0.05	1.2
31/12/2020 12:57	0.0	0.1	19.3	0	0	992	991	0.05	1.2
31/12/2020 13:57	0.0	0.1	19.3	0	0	992	992	0.05	1.3
31/12/2020 14:57	0.0	0.2	19.3	0	0	992	992	0.05	1.3
31/12/2020 15:57	0.0	0.1	19.3	1	0	993	993	0.05	1.3
31/12/2020 16:57	0.0	0.2	19.3	0	0	994	993	0.05	1.3
31/12/2020 17:57	0.0	0.1	19.3	0	0	994	993	0.05	1.3
31/12/2020 18:57	0.0	0.2	19.4	1	0	995	994	0.05	1.3
31/12/2020 19:57	0.0	0.1	19.4	0	0	995	995	0.05	1.3
31/12/2020 20:57	0.0	0.1	19.3	1	0	996	995	0.05	1.3
31/12/2020 21:57	0.0	0.1	19.4	0	0	996	996	0.05	1.3
31/12/2020 22:57	0.0	0.1	19.3	1	0	997	996	0.05	1.3
31/12/2020 23:57	0.0	0.1	19.3	0	0	997	996	0.05	1.3
01/01/2021 00:57	0.0	0.1	19.3	1	0	997	996	0.05	1.3
01/01/2021 01:57	0.0	0.2	19.3	1	0	997	997	0.05	1.2
01/01/2021 02:57	0.0	0.1	19.3	1	0	998	997	0.08	1.2
01/01/2021 03:57	0.0	0.1	19.3	1	0	998	998	0.05	1.2
01/01/2021 04:57	0.0	0.1	19.3	0	0	998	998	0.05	1.2
01/01/2021 05:57	0.0	0.2	19.3	0	0	998	998	0.05	1.2
01/01/2021 06:57	0.0	0.1	19.3	0	0	999	998	0.05	1.1
01/01/2021 07:57	0.0	0.0	19.3	1	0	999	999	0.05	1.1
01/01/2021 08:57	0.0	0.0	19.3	1	0	1000	999	0.05	1.1
01/01/2021 09:57	0.0	0.0	19.3	0	0	1000	1000	0.05	1.1
01/01/2021 10:57	0.0	0.0	19.3	0	0	1000	1000	0.05	1.1
01/01/2021 11:57	0.0	0.0	19.3	0	0	1000	1000	0.05	1.1
01/01/2021 12:57	0.0	0.0	19.2	0	0	1000	1000	0.05	1.2
01/01/2021 13:57	0.0	0.0	19.2	0	0	1000	1000	0.05	1.3
01/01/2021 14:57	0.0	0.0	19.3	1	0	1001	1000	0.05	1.3
01/01/2021 15:57	0.0	0.0	19.3	0	0	1001	1001	0.05	1.4
01/01/2021 16:57	0.0	0.0	19.3	1	0	1002	1001	0.05	1.4
01/01/2021 17:57	0.0	0.0	19.3	1	0	1002	1002	0.05	1.4
01/01/2021 18:57	0.0	0.0	19.4	0	0	1002	1002	0.05	1.3
01/01/2021 19:57	0.0	0.0	19.4	0	0	1003	1003	0.05	1.3
01/01/2021 20:57	0.0	0.0	19.4	0	0	1003	1003	0.05	1.2
01/01/2021 21:57	0.0	0.0	19.3	1	0	1003	1003	0.05	1.1
01/01/2021 22:57	0.0	0.0	19.3	1	0	1004	1004	0.05	1.1
01/01/2021 23:57	0.0	0.0	19.3	1	0	1004	1004	0.05	1.0
02/01/2021 00:57	0.0	0.0	19.3	0	0	1004	1004	0.05	0.9
02/01/2021 01:57	0.0	0.0	19.3	1	0	1004	1004	0.05	0.9
02/01/2021 02:57	0.0	0.0	19.3	0	0	1004	1004	0.05	0.8
02/01/2021 03:57	0.0	0.0	19.3	1	0	1004	1004	0.05	0.8
02/01/2021 04:57	0.0	0.0	19.2	1	0	1004	1004	0.08	0.7
02/01/2021 05:57	0.0	0.0	19.2	0	0	1004	1004	0.05	0.6
02/01/2021 06:57	0.0	0.0	19.2	0	0	1004	1003	0.05	0.6
02/01/2021 07:57	0.0	0.0	19.2	0	0	1004	1003	0.05	0.5
02/01/2021 08:57	0.0	0.0	19.2	1	0	1004	1004	0.05	0.5
02/01/2021 09:57	0.0	0.0	19.2	1	0	1004	1004	0.05	0.4
02/01/2021 10:57	0.0	0.0	19.2	0	0	1004	1004	0.05	0.5
02/01/2021 11:57	0.0	0.0	19.2	1	0	1004	1004	0.05	0.5
02/01/2021 12:57	0.0	0.0	19.2	0	0	1004	1003	0.05	0.6
02/01/2021 13:57	0.0	0.0	19.2	0	0	1004	1003	0.05	0.6
02/01/2021 14:57	0.0	0.0	19.2	1	0	1004	1004	0.05	0.6
02/01/2021 15:57	0.0	0.0	19.2	1	0	1004	1004	0.05	0.7
02/01/2021 16:57	0.0	0.0	19.2	1	0	1005	1004	0.05	0.7
02/01/2021 17:57	0.0	0.0	19.2	1	0	1005	1005	0.05	0.7
02/01/2021 18:57	0.0	0.0	19.2	0	0	1005	1005	0.05	0.7
02/01/2021 19:57	0.0	0.0	19.3	1	0	1006	1005	0.05	0.7
02/01/2021 20:57	0.0	0.0	19.2	1	0	1006	1005	0.05	0.6
02/01/2021 21:57	0.0	0.0	19.3	1	0	1006	1006	0.00	0.6
02/01/2021 22:57	0.0	0.0	19.2	1	0	1006	1006	0.00	0.6
02/01/2021 23:57	0.0	0.0	19.2	1	0	1006	1006	0.00	0.6
03/01/2021 00:57	0.0	0.0	19.2	1	0	1006	1006	0.08	0.6
03/01/2021 01:57	0.0	0.0	19.2	1	0	1006	1006	0.00	0.6
03/01/2021 02:57	0.0	0.0	19.2	0	0	1006	1006	0.00	0.6
03/01/2021 03:57	0.0	0.0	19.2	1	0	1007	1006	0.00	0.6
03/01/2021 04:57	0.0	0.0	19.2	0	0	1007	1006	0.00	0.6
03/01/2021 05:57	0.0	0.0	19.2	1	0	1007	1006	0.00	0.6
03/01/2021 06:57	0.0	0.0	19.2	1	0	1007	1007	0.05	0.6
03/01/2021 07:57	0.0	0.0	19.2	0	0	1007	1007	0.05	0.6
03/01/2021 08:57	0.0	0.0	19.2	0	0	1008	1008	0.05	0.6
03/01/2021 09:57	0.0	0.0	19.2	1	0	1008	1008	0.05	0.6
03/01/2021 10:57	0.0	0.0	19.2	1	0	1009	1008	0.05	0.6
03/01/2021 11:57	0.0	0.0	19.2	0	0	1009	1008	0.05	0.6
03/01/2021 12:57	0.0	0.0	19.1	0	0	1009	1008	0.05	0.6
03/01/2021 13:57	0.0	0.0	19.1	1	0	1009	1008	0.05	0.7
03/01/2021 14:57	0.0	0.0	19.2	1	0	1009	1009	0.05	0.8
03/01/2021 15:57	0.0	0.0	19.1	1	0	1009	1009	0.05	0.8
03/01/2021 16:57	0.0	0.0	19.2	0	0	1009	1009	0.05	0.8
03/01/2021 17:57	0.0	0.0	19.2	0	0	1010	1009	0.05	0.8
03/01/2021 18:57	0.0	0.0	19.3	1	0	1010	1010	0.05	0.8
03/01/2021 19:57	0.0	0.0	19.2	0	0	1011	1010	0.05	0.8
03/01/2021 20:57	0.0	0.0	19.2	1	0	1011	1011	0.05	0.7
03/01/2021 21:57	0.0	0.0	19.2	0	0	1011	1011	0.05	0.7
03/01/2021 22:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.6
03/01/2021 23:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.6
04/01/2021 00:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.6
04/01/2021 01:57	0.0	0.0	19.2	0	0	1012	1012	-0.05	0.6
04/01/2021 02:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.6
04/01/2021 03:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.6
04/01/2021 04:57	0.0	0.0	19.2	0	0	1012	1011	0.05	0.5
04/01/2021 05:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.5
04/01/2021 06:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.5
04/01/2021 07:57	0.0	0.0	19.2	1	0	1013	1012	0.05	0.5
04/01/2021 08:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.5
04/01/2021 09:57	0.0	0.0	19.2	1	0	1013	1013	0.05	0.5
04/01/2021 10:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.5
04/01/2021 11:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.6
04/01/2021 12:57	0.0	0.0	19.1	0	0	1013	1012	0.05	0.6
04/01/2021 13:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.7
04/01/2021 14:57	0.0	0.0	19.1	1	0	1013	1012	0.05	0.7
04/01/2021 15:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.8
04/01/2021 16:57	0.0	0.0	19.2	1	0	1013	1013	0.05	0.8
04/01/2021 17:57	0.0	0.0	19.2	1	0	1013	1013	0.05	0.8

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
04/01/2021 18:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.8
04/01/2021 19:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.8
04/01/2021 20:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.8
04/01/2021 21:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.8
04/01/2021 22:57	0.0	0.0	19.2	1	0	1013	1013	0.05	0.7
04/01/2021 23:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.7
05/01/2021 00:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.7
05/01/2021 01:57	0.0	0.0	19.2	1	0	1013	1012	0.05	0.7
05/01/2021 02:57	0.0	0.0	19.1	1	0	1012	1012	-0.05	0.7
05/01/2021 03:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.6
05/01/2021 04:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.6
05/01/2021 05:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.6
05/01/2021 06:57	0.0	0.0	19.2	0	0	1013	1012	0.05	0.6
05/01/2021 07:57	0.0	0.0	19.1	0	0	1013	1012	0.05	0.6
05/01/2021 08:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.6
05/01/2021 09:57	0.0	0.0	19.2	0	0	1013	1013	0.05	0.6
05/01/2021 10:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.6
05/01/2021 11:57	0.0	0.0	19.1	0	0	1013	1012	0.05	0.6
05/01/2021 12:57	0.0	0.0	19.1	0	0	1012	1012	0.08	0.7
05/01/2021 13:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.7
05/01/2021 14:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.8
05/01/2021 15:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.8
05/01/2021 16:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.8
05/01/2021 17:57	0.0	0.0	19.2	0	0	1012	1012	0.05	0.8
05/01/2021 18:57	0.0	0.0	19.2	0	0	1013	1012	0.05	0.8
05/01/2021 19:57	0.0	0.0	19.2	1	0	1013	1012	0.05	0.8
05/01/2021 20:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.8
05/01/2021 21:57	0.0	0.0	19.1	0	0	1012	1012	0.05	0.7
05/01/2021 22:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.7
05/01/2021 23:57	0.0	0.0	19.2	1	0	1012	1012	0.05	0.6
06/01/2021 00:57	0.0	0.0	19.1	1	0	1012	1011	0.05	0.6
06/01/2021 01:57	0.0	0.0	19.1	0	0	1011	1011	0.05	0.5
06/01/2021 02:57	0.0	0.0	19.1	1	0	1011	1011	0.05	0.4
06/01/2021 03:57	0.0	0.0	19.1	0	0	1011	1011	0.05	0.4
06/01/2021 04:57	0.0	0.0	19.1	1	0	1010	1010	0.05	0.4
06/01/2021 05:57	0.0	0.0	19.1	0	0	1010	1010	0.05	0.4
06/01/2021 06:57	0.0	0.0	19.1	1	0	1010	1010	0.05	0.4
06/01/2021 07:57	0.0	0.0	19.1	1	0	1011	1010	0.05	0.4
06/01/2021 08:57	0.0	0.0	19.1	1	0	1011	1010	0.08	0.3
06/01/2021 09:57	0.0	0.0	19.1	1	0	1011	1010	0.05	0.3
06/01/2021 10:57	0.0	0.0	19.1	0	0	1010	1010	0.05	0.3
06/01/2021 11:57	0.0	0.0	19.0	0	0	1010	1009	0.05	0.4
06/01/2021 12:57	0.0	0.0	19.0	0	0	1009	1009	0.05	0.4
06/01/2021 13:57	0.0	0.0	19.0	0	0	1009	1009	0.05	0.4
06/01/2021 14:57	0.0	0.0	19.0	1	0	1009	1009	0.05	0.5
06/01/2021 15:57	0.0	0.0	19.1	1	0	1009	1009	0.05	0.5
06/01/2021 16:57	0.0	0.0	19.1	1	0	1009	1009	0.05	0.5
06/01/2021 17:57	0.0	0.0	19.2	0	0	1008	1009	0.05	0.4
06/01/2021 18:57	0.0	0.0	19.1	1	0	1009	1009	0.05	0.4
06/01/2021 19:57	0.0	0.0	19.2	0	0	1009	1009	0.05	0.3
06/01/2021 20:57	0.0	0.0	19.1	0	0	1009	1009	0.05	0.3
06/01/2021 21:57	0.0	0.0	19.1	0	0	1008	1008	0.05	0.2
06/01/2021 22:57	0.0	0.0	19.1	0	0	1008	1008	0.05	0.1
06/01/2021 23:57	0.0	0.0	19.1	0	0	1008	1008	0.05	0.1
07/01/2021 00:57	0.0	0.0	19.1	0	0	1007	1007	0.05	0.0
07/01/2021 01:57	0.0	0.0	19.1	1	0	1007	1007	0.05	-0.1
07/01/2021 02:57	0.0	0.0	19.1	0	0	1007	1007	0.05	-0.1
07/01/2021 03:57	0.0	0.0	19.1	1	0	1006	1006	0.05	-0.1
07/01/2021 04:57	0.0	0.0	19.0	1	0	1006	1006	0.05	-0.1
07/01/2021 05:57	0.0	0.0	19.0	1	0	1006	1006	0.05	-0.1
07/01/2021 06:57	0.0	0.0	19.0	1	0	1006	1005	0.08	-0.1
07/01/2021 07:57	0.0	0.0	19.0	0	0	1006	1005	0.05	0.0
07/01/2021 08:57	0.0	0.0	19.1	0	0	1006	1006	0.05	0.0
07/01/2021 09:57	0.0	0.0	19.0	0	0	1006	1006	0.05	0.1
07/01/2021 10:57	0.0	0.0	19.0	0	0	1006	1005	0.05	0.1
07/01/2021 11:57	0.0	0.0	19.0	0	0	1005	1005	0.05	0.1
07/01/2021 12:57	0.0	0.0	19.0	0	0	1004	1004	0.05	0.1
07/01/2021 13:57	0.0	0.0	19.0	0	0	1004	1004	0.00	0.2
07/01/2021 14:57	0.0	0.0	19.0	1	0	1004	1003	0.00	0.2
07/01/2021 15:57	0.0	0.0	19.1	1	0	1004	1003	0.00	0.2
07/01/2021 16:57	0.0	0.0	19.1	1	0	1004	1003	0.00	0.3
07/01/2021 17:57	0.0	0.0	19.1	1	0	1003	1003	0.00	0.3
07/01/2021 18:57	0.0	0.0	19.1	0	0	1003	1003	0.00	0.3
07/01/2021 19:57	0.0	0.0	19.1	1	0	1003	1003	0.00	0.3
07/01/2021 20:57	0.0	0.0	19.1	1	0	1004	1003	0.00	0.3
07/01/2021 21:57	0.0	0.0	19.1	0	0	1003	1003	-0.05	0.3
07/01/2021 22:57	0.0	0.0	19.1	1	0	1004	1003	0.00	0.3
07/01/2021 23:57	0.0	0.0	19.1	1	0	1003	1003	0.00	0.3
08/01/2021 00:57	0.0	0.0	19.1	0	0	1003	1003	0.00	0.3
08/01/2021 01:57	0.0	0.0	19.1	1	0	1003	1003	0.00	0.3
08/01/2021 02:57	0.0	0.0	19.1	0	0	1003	1003	0.00	0.3
08/01/2021 03:57	0.0	0.0	19.1	1	0	1003	1003	0.00	0.3
08/01/2021 04:57	0.0	0.0	19.1	1	0	1003	1003	0.05	0.3
08/01/2021 05:57	0.0	0.0	19.1	1	0	1003	1003	0.05	0.3
08/01/2021 06:57	0.0	0.0	19.1	0	0	1004	1004	0.05	0.3
08/01/2021 07:57	0.0	0.0	19.1	0	0	1004	1004	0.05	0.3
08/01/2021 08:57	0.0	0.0	19.1	1	0	1005	1005	0.05	0.3
08/01/2021 09:57	0.0	0.0	19.1	1	0	1006	1005	0.05	0.3
08/01/2021 10:57	0.0	0.0	19.1	0	0	1006	1005	0.05	0.3
08/01/2021 11:57	0.0	0.0	19.1	1	0	1006	1006	0.05	0.3
08/01/2021 12:57	0.0	0.0	19.1	0	0	1006	1006	0.05	0.4
08/01/2021 13:57	0.0	0.0	19.1	1	0	1006	1006	0.05	0.4
08/01/2021 14:57	0.0	0.0	19.1	1	0	1007	1007	0.05	0.4
08/01/2021 15:57	0.0	0.0	19.1	1	0	1008	1008	0.08	0.4
08/01/2021 16:57	0.0	0.0	19.2	0	0	1009	1008	0.05	0.5
08/01/2021 17:57	0.0	0.0	19.1	1	0	1009	1009	0.05	0.5
08/01/2021 18:57	0.0	0.0	19.2	1	0	1009	1009	0.05	0.4
08/01/2021 19:57	0.0	0.0	19.2	0	0	1010	1010	0.05	0.4
08/01/2021 20:57	0.0	0.0	19.2	1	0	1011	1010	0.08	0.4
08/01/2021 21:57	0.0	0.0	19.1	0	0	1011	1011	0.05	0.4
08/01/2021 22:57	0.0	0.0	19.1	0	0	1011	1011	0.05	0.4
08/01/2021 23:57	0.0	0.0	19.1	1	0	1011	1011	0.05	0.4
09/01/2021 00:57	0.0	0.0	19.1	0	0	1012	1011	0.05	0.4
09/01/2021 01:57	0.0	0.0	19.1	0	0	1012	1012	0.05	0.4
09/01/2021 02:57	0.0	0.0	19.1	1	0	1012	1012	0.05	0.4
09/01/2021 03:57	0.0	0.0	19.1	0	0	1013	1012	0.05	0.4
09/01/2021 04:57	0.0	0.0	19.1	1	0	1013	1012	-0.05	0.3
09/01/2021 05:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.3
09/01/2021 06:57	0.0	0.0	19.1	0	0	1013	1013	0.00	0.3
09/01/2021 07:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.2
09/01/2021 08:57	0.0	0.0	19.1	0	0	1014	1013	0.05	0.1
09/01/2021 09:57	0.0	0.0	19.1	0	0	1014	1014	0.05	0.1
09/01/2021 10:57	0.0	0.0	19.1	0	0	1014	1014	0.05	0.2
09/01/2021 11:57	0.0	0.0	19.0	0	0	1013	1014	0.05	0.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
09/01/2021 12:57	0.0	0.0	19.0	0	0	1013	1013	0.05	0.3
09/01/2021 13:57	0.0	0.0	19.0	1	0	1013	1013	0.05	0.3
09/01/2021 14:57	0.0	0.0	19.1	0	0	1013	1013	0.00	0.3
09/01/2021 15:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.4
09/01/2021 16:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.4
09/01/2021 17:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.4
09/01/2021 18:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.4
09/01/2021 19:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.3
09/01/2021 20:57	0.0	0.0	19.1	0	0	1013	1013	0.05	0.3
09/01/2021 21:57	0.0	0.0	19.1	1	0	1013	1013	0.05	0.3
09/01/2021 22:57	0.0	0.0	19.1	0	0	1013	1013	-0.05	0.3
09/01/2021 23:57	0.0	0.0	19.1	0	0	1012	1013	0.05	0.3
10/01/2021 00:57	0.0	0.0	19.0	0	0	1012	1012	0.05	0.3
10/01/2021 01:57	0.0	0.0	19.0	0	0	1012	1012	0.08	0.3
10/01/2021 02:57	0.0	0.0	19.0	1	0	1012	1012	0.00	0.3
10/01/2021 03:57	0.0	0.0	19.0	0	0	1012	1012	0.05	0.3
10/01/2021 04:57	0.0	0.0	19.0	0	0	1011	1012	0.05	0.3
10/01/2021 05:57	0.0	0.0	19.1	0	0	1011	1012	0.05	0.3
10/01/2021 06:57	0.0	0.0	19.0	0	0	1011	1011	0.05	0.3
10/01/2021 07:57	0.0	0.0	19.0	0	0	1011	1011	0.05	0.3
10/01/2021 08:57	0.0	0.0	19.1	0	0	1011	1012	0.05	0.4
10/01/2021 09:57	0.0	0.0	19.1	0	0	1011	1012	0.05	0.4
10/01/2021 10:57	0.0	0.0	18.9	0	0	1011	1012	0.05	0.4
10/01/2021 11:57	0.0	0.0	19.0	0	0	1011	1011	0.05	0.4
10/01/2021 12:57	0.0	0.0	19.0	0	0	1011	1010	0.05	0.4
10/01/2021 13:57	0.0	0.0	19.0	0	0	1010	1010	0.05	0.5
10/01/2021 14:57	0.0	0.0	19.0	0	0	1010	1009	-0.05	0.5
10/01/2021 15:57	0.0	0.0	19.0	0	0	1009	1009	0.05	0.6
10/01/2021 16:57	0.0	0.0	19.0	0	0	1009	1009	0.05	0.6
10/01/2021 17:57	0.0	0.0	19.0	0	0	1008	1009	0.05	0.6
10/01/2021 18:57	0.0	0.0	19.0	0	0	1008	1009	0.05	0.7
10/01/2021 19:57	0.0	0.0	19.0	0	0	1008	1008	0.05	0.7
10/01/2021 20:57	0.0	0.0	19.0	1	0	1008	1008	0.05	0.8
10/01/2021 21:57	0.0	0.0	19.0	1	0	1007	1008	0.05	0.8
10/01/2021 22:57	0.0	0.0	19.0	0	0	1007	1007	0.05	0.8
10/01/2021 23:57	0.0	0.0	18.9	1	0	1006	1006	0.05	0.8
11/01/2021 00:57	0.0	0.0	18.9	1	0	1006	1006	0.05	0.8
11/01/2021 01:57	0.0	0.0	18.9	0	0	1005	1005	0.05	0.9
11/01/2021 02:57	0.0	0.0	18.9	0	0	1005	1005	0.05	0.9
11/01/2021 03:57	0.0	0.0	19.1	1	0	1004	1004	0.05	0.9
11/01/2021 04:57	0.0	0.0	18.9	0	0	1003	1003	0.05	0.9
11/01/2021 05:57	0.0	0.0	18.9	0	0	1003	1002	0.05	1.0
11/01/2021 06:57	0.0	0.0	18.9	0	0	1002	1002	0.05	1.1
11/01/2021 07:57	0.0	0.0	18.9	1	0	1002	1002	0.00	1.1
11/01/2021 08:57	0.0	0.1	18.9	0	0	1001	1002	0.05	1.1
11/01/2021 09:57	0.0	0.1	18.9	0	0	1001	1001	0.05	1.2
11/01/2021 10:57	0.0	0.1	18.9	0	0	1001	1001	0.05	1.3
11/01/2021 11:57	0.0	0.1	18.8	1	0	1000	999	0.05	1.3
11/01/2021 12:57	0.0	0.2	18.8	1	0	999	999	0.05	1.4
11/01/2021 13:57	0.0	0.1	18.8	0	0	998	998	0.05	1.4
11/01/2021 14:57	0.0	0.1	18.8	1	0	997	997	0.05	1.5
11/01/2021 15:57	0.0	0.2	18.8	1	0	997	996	0.00	1.6
11/01/2021 16:57	0.0	0.1	18.8	0	0	996	996	0.05	1.7
11/01/2021 17:57	0.0	0.2	18.8	1	0	996	995	0.05	1.8
11/01/2021 18:57	0.0	0.2	18.8	0	0	995	995	0.05	1.9
11/01/2021 19:57	0.0	0.1	18.8	0	0	995	995	0.05	1.9
11/01/2021 20:57	0.0	0.1	18.8	0	0	995	995	0.05	2.0
11/01/2021 21:57	0.0	0.1	18.8	0	0	994	994	0.05	2.1
11/01/2021 22:57	0.0	0.2	18.8	0	0	994	994	0.05	2.3
11/01/2021 23:57	0.0	0.2	18.9	1	0	994	994	0.00	2.3
12/01/2021 00:57	0.0	0.1	18.9	1	0	994	994	0.05	2.4
12/01/2021 01:57	0.0	0.2	19.0	0	0	995	994	0.05	2.4
12/01/2021 02:57	0.0	0.1	19.1	1	0	996	994	0.05	2.5
12/01/2021 03:57	0.0	0.2	19.1	0	0	997	995	0.05	2.6
12/01/2021 04:57	0.0	0.1	19.1	1	0	998	995	0.05	2.6
12/01/2021 05:57	0.0	0.1	19.1	0	0	999	996	0.05	2.6
12/01/2021 06:57	0.0	0.1	19.1	1	0	1000	997	0.05	2.7
12/01/2021 07:57	0.0	0.1	19.1	0	0	1002	999	0.05	2.7
12/01/2021 08:57	0.0	0.1	19.2	0	0	1003	1000	0.05	2.6
12/01/2021 09:57	0.0	0.1	19.2	0	0	1004	1001	0.05	2.6
12/01/2021 10:57	0.0	0.2	19.1	0	0	1004	1002	0.05	2.5
12/01/2021 11:57	0.0	0.1	19.1	0	0	1005	1002	0.05	2.4

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463		
Location:	School Street, Radcliffe		
Borehole ref:	WS106		
Instrument ID:	GC #00224/01/12 FD #030700004	Days of monitoring:	19
Start Date:	21/12/2020 13:08	Monitoring Frequency (mins):	60
End Date:	09/01/2021 10:08	Total samples taken:	454

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Borehole Pressure	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	16.5	0	0	956	957	-0.54	2.5
Maximum	1.5	0.0	21.5	0	34	1021	1021	0.30	11.3
Range	1.5	0.0	5.0	0	34	65	64	0.85	8.8

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
21/12/2020 13:08	0.0	0.0	21.2	0	32	986	987	-0.30	11.3
21/12/2020 14:08	0.8	0.0	20.0	0	34	986	987	-0.30	8.8
21/12/2020 15:08	0.9	0.0	20.5	0	30	986	987	-0.30	7.7
21/12/2020 16:08	0.8	0.0	19.5	0	24	986	987	0.00	7.4
21/12/2020 17:08	0.8	0.0	19.5	0	18	986	986	-0.30	7.3
21/12/2020 18:08	0.7	0.0	19.6	0	14	986	987	0.00	7.3
21/12/2020 19:08	0.7	0.0	19.6	0	11	986	987	-0.54	7.3
21/12/2020 20:08	0.6	0.0	19.8	0	10	986	987	0.00	7.3
21/12/2020 21:08	0.6	0.0	19.8	0	8	987	988	0.00	7.3
21/12/2020 22:08	0.5	0.0	19.6	0	7	987	988	0.00	7.3
21/12/2020 23:08	0.5	0.0	19.7	0	5	988	989	0.00	7.3
22/12/2020 00:08	0.5	0.0	19.7	0	5	990	991	0.00	7.4
22/12/2020 01:08	0.5	0.0	19.7	0	4	991	992	0.00	7.4
22/12/2020 02:08	0.5	0.0	19.7	0	4	992	993	0.00	7.4
22/12/2020 03:08	0.5	0.0	19.8	0	3	994	994	0.00	7.4
22/12/2020 04:08	0.4	0.0	19.8	0	3	995	996	-0.54	7.4
22/12/2020 05:08	0.4	0.0	19.7	0	2	995	996	0.00	7.3
22/12/2020 06:08	0.4	0.0	19.7	0	2	997	997	0.00	7.2
22/12/2020 07:08	0.4	0.0	19.8	0	2	998	999	0.30	7.1
22/12/2020 08:08	0.4	0.0	21.2	0	2	998	999	0.00	6.9
22/12/2020 09:08	0.4	0.0	19.7	0	1	999	1000	-0.54	6.8
22/12/2020 10:08	0.4	0.0	19.7	0	2	1000	1001	0.00	6.8
22/12/2020 11:08	0.3	0.0	19.7	0	1	1000	1001	0.00	6.7
22/12/2020 12:08	0.3	0.0	19.7	0	1	1000	1001	0.30	6.7
22/12/2020 13:08	0.3	0.0	21.5	0	2	1000	1001	0.00	6.7
22/12/2020 14:08	0.3	0.0	19.6	0	1	1000	1000	0.00	6.7
22/12/2020 15:08	0.3	0.0	19.6	0	2	1000	1000	0.30	6.7
22/12/2020 16:08	0.3	0.0	19.6	0	1	1000	1001	0.00	6.8
22/12/2020 17:08	0.3	0.0	19.6	0	0	1000	1001	0.00	6.8
22/12/2020 18:08	0.3	0.0	19.5	0	1	999	1000	0.00	6.7
22/12/2020 19:08	0.3	0.0	19.5	0	1	999	1000	0.00	6.7
22/12/2020 20:08	0.3	0.0	19.5	0	2	999	999	0.00	6.6
22/12/2020 21:08	0.3	0.0	19.6	0	1	999	1000	0.00	6.6
22/12/2020 22:08	0.3	0.0	19.5	0	2	999	1000	0.00	6.6
22/12/2020 23:08	0.3	0.0	19.5	0	1	998	999	0.00	6.6
23/12/2020 00:08	0.2	0.0	19.5	0	1	998	998	0.00	6.6
23/12/2020 01:08	0.2	0.0	19.5	0	1	997	998	0.00	6.5
23/12/2020 02:08	0.2	0.0	19.5	0	1	997	997	0.00	6.5
23/12/2020 03:08	0.2	0.0	19.5	0	1	996	997	0.00	6.5
23/12/2020 04:08	0.2	0.0	19.5	0	2	996	996	0.00	6.5
23/12/2020 05:08	0.2	0.0	19.6	0	1	995	996	0.00	6.5
23/12/2020 06:08	0.2	0.0	19.6	0	1	995	995	0.00	6.5
23/12/2020 07:08	0.2	0.0	19.6	0	1	994	995	0.00	6.5
23/12/2020 08:08	0.2	0.0	19.7	0	1	994	995	0.00	6.5
23/12/2020 09:08	0.2	0.0	19.7	0	2	994	995	0.00	6.4
23/12/2020 10:08	0.2	0.0	19.6	0	2	994	995	0.00	6.4
23/12/2020 11:08	0.2	0.0	19.6	0	1	994	994	0.00	6.4
23/12/2020 12:08	0.2	0.0	19.6	0	2	993	994	0.00	6.5
23/12/2020 13:08	0.2	0.0	19.7	0	2	993	993	0.00	6.5
23/12/2020 14:08	0.2	0.0	19.7	0	2	993	994	0.00	6.5
23/12/2020 15:08	0.2	0.0	19.8	0	2	994	994	0.00	6.6
23/12/2020 16:08	0.2	0.0	19.8	0	2	994	995	0.30	6.6
23/12/2020 17:08	0.2	0.0	19.8	0	2	995	996	0.00	6.6
23/12/2020 18:08	0.2	0.0	19.9	0	2	997	997	0.30	6.6
23/12/2020 19:08	0.2	0.0	20.0	0	1	998	999	0.00	6.6
23/12/2020 20:08	0.2	0.0	20.0	0	2	999	1000	0.00	6.6
23/12/2020 21:08	0.2	0.0	20.0	0	1	1000	1001	0.00	6.6
23/12/2020 22:08	0.2	0.0	20.1	0	2	1002	1002	0.00	6.6
23/12/2020 23:08	0.2	0.0	20.0	0	1	1003	1003	0.30	6.6
24/12/2020 00:08	0.2	0.0	19.9	0	2	1004	1005	0.00	6.6
24/12/2020 01:08	0.2	0.0	20.1	0	2	1005	1006	0.30	6.6
24/12/2020 02:08	0.2	0.0	20.1	0	1	1006	1007	-0.54	6.6
24/12/2020 03:08	0.2	0.0	19.9	0	1	1007	1008	0.30	6.5
24/12/2020 04:08	0.2	0.0	20.0	0	2	1008	1009	0.00	6.4
24/12/2020 05:08	0.2	0.0	20.9	0	2	1009	1009	0.00	6.3
24/12/2020 06:08	0.2	0.0	19.8	0	2	1009	1009	0.00	6.2
24/12/2020 07:08	0.2	0.0	19.8	0	1	1009	1010	0.00	6.1
24/12/2020 08:08	0.2	0.0	19.8	0	1	1010	1011	0.00	5.9
24/12/2020 09:08	0.3	0.0	19.8	0	2	1012	1013	0.00	5.8
24/12/2020 10:08	0.3	0.0	19.7	0	1	1013	1013	0.00	5.7
24/12/2020 11:08	0.3	0.0	19.7	0	2	1014	1014	0.00	5.6
24/12/2020 12:08	0.3	0.0	19.7	0	2	1014	1015	0.00	5.6
24/12/2020 13:08	0.3	0.0	19.8	0	2	1015	1015	0.00	5.6
24/12/2020 14:08	0.3	0.0	19.7	0	2	1015	1016	0.00	5.6
24/12/2020 15:08	0.3	0.0	19.7	0	2	1016	1017	0.00	5.6
24/12/2020 16:08	0.3	0.0	21.2	0	1	1017	1018	0.00	5.6
24/12/2020 17:08	0.3	0.0	19.6	0	2	1017	1018	0.00	5.6
24/12/2020 18:08	0.3	0.0	19.6	0	2	1018	1019	0.00	5.5
24/12/2020 19:08	0.3	0.0	19.6	0	1	1019	1020	0.00	5.4
24/12/2020 20:08	0.3	0.0	19.6	0	1	1019	1020	0.00	5.3
24/12/2020 21:08	0.4	0.0	19.6	0	2	1020	1020	0.00	5.3
24/12/2020 22:08	0.4	0.0	19.5	0	2	1020	1020	0.00	5.1
24/12/2020 23:08	0.4	0.0	19.6	0	2	1020	1020	0.00	5.1
25/12/2020 00:08	0.4	0.0	19.5	0	2	1020	1020	0.00	4.9
25/12/2020 01:08	0.4	0.0	19.5	0	2	1020	1021	0.00	4.9
25/12/2020 02:08	0.4	0.0	19.5	0	2	1020	1021	0.00	4.8
25/12/2020 03:08	0.4	0.0	19.5	0	2	1020	1021	0.30	4.8
25/12/2020 04:08	0.4	0.0	19.5	0	2	1020	1021	0.00	4.7
25/12/2020 05:08	0.4	0.0	19.5	0	2	1021	1021	0.00	4.6
25/12/2020 06:08	0.4	0.0	19.5	0	2	1021	1021	0.00	4.6
25/12/2020 07:08	0.4	0.0	19.5	0	2	1020	1021	0.00	4.5
25/12/2020 08:08	0.4	0.0	19.4	0	1	1020	1021	0.00	4.4
25/12/2020 09:08	0.4	0.0	19.5	0	1	1020	1021	0.00	4.4
25/12/2020 10:08	0.4	0.0	19.4	0	1	1020	1021	0.00	4.4
25/12/2020 11:08	0.4	0.0	19.4	0	2	1020	1020	0.00	4.3
25/12/2020 12:08	0.4	0.0	19.4	0	2	1020	1020	0.00	4.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
25/12/2020 13:08	0.4	0.0	19.4	0	2	1019	1020	0.00	4.3
25/12/2020 14:08	0.4	0.0	19.4	0	2	1019	1020	0.00	4.3
25/12/2020 15:08	0.4	0.0	19.3	0	2	1018	1018	0.00	4.3
25/12/2020 16:08	0.4	0.0	19.3	0	2	1017	1018	0.00	4.4
25/12/2020 17:08	0.4	0.0	19.2	0	2	1016	1017	0.00	4.4
25/12/2020 18:08	0.4	0.0	19.3	0	2	1016	1016	0.30	4.4
25/12/2020 19:08	0.4	0.0	19.3	0	2	1015	1015	0.00	4.4
25/12/2020 20:08	0.4	0.0	19.2	0	2	1014	1014	0.00	4.4
25/12/2020 21:08	0.4	0.0	19.3	0	2	1014	1014	0.00	4.3
25/12/2020 22:08	0.4	0.0	19.2	0	2	1013	1013	0.00	4.3
25/12/2020 23:08	0.4	0.0	19.2	0	3	1012	1013	0.00	4.3
26/12/2020 00:08	0.4	0.0	19.3	0	2	1011	1012	0.00	4.3
26/12/2020 01:08	0.4	0.0	19.2	0	2	1010	1011	0.00	4.4
26/12/2020 02:08	0.4	0.0	19.2	0	2	1009	1009	0.00	4.4
26/12/2020 03:08	0.4	0.0	19.2	0	2	1008	1009	0.00	4.4
26/12/2020 04:08	0.4	0.0	19.2	0	2	1007	1007	0.00	4.4
26/12/2020 05:08	0.4	0.0	19.2	0	2	1006	1006	0.00	4.4
26/12/2020 06:08	0.4	0.0	19.2	0	2	1005	1006	0.00	4.4
26/12/2020 07:08	0.4	0.0	19.2	0	2	1004	1005	0.00	4.5
26/12/2020 08:08	0.4	0.0	19.3	0	3	1004	1004	0.00	4.5
26/12/2020 09:08	0.4	0.0	19.2	0	2	1003	1003	0.00	4.6
26/12/2020 10:08	0.5	0.0	19.2	0	2	1002	1002	0.00	4.6
26/12/2020 11:08	0.5	0.0	19.2	0	2	1000	1000	0.00	4.6
26/12/2020 12:08	0.4	0.0	19.2	0	2	998	999	0.00	4.7
26/12/2020 13:08	0.5	0.0	19.2	0	2	996	996	0.00	4.7
26/12/2020 14:08	0.4	0.0	19.1	0	2	994	994	-0.54	4.8
26/12/2020 15:08	0.4	0.0	19.2	0	2	991	991	0.00	4.8
26/12/2020 16:08	0.4	0.0	19.1	0	2	989	989	0.00	4.9
26/12/2020 17:08	0.4	0.0	19.1	0	2	987	987	0.00	4.9
26/12/2020 18:08	0.4	0.0	19.1	0	2	984	984	0.00	4.9
26/12/2020 19:08	0.4	0.0	19.1	0	2	981	982	0.00	5.0
26/12/2020 20:08	0.4	0.0	19.1	0	3	978	979	0.00	5.1
26/12/2020 21:08	0.4	0.0	19.0	0	2	975	975	0.00	5.1
26/12/2020 22:08	0.4	0.0	19.0	0	2	972	972	0.00	5.1
26/12/2020 23:08	0.4	0.0	19.0	0	2	969	970	0.00	5.2
27/12/2020 00:08	0.5	0.0	18.6	0	2	966	967	0.00	5.2
27/12/2020 01:08	0.5	0.0	18.7	0	3	965	964	0.00	5.3
27/12/2020 02:08	0.5	0.0	18.6	0	3	962	963	0.00	5.3
27/12/2020 03:08	0.4	0.0	18.7	0	2	961	962	-0.54	5.3
27/12/2020 04:08	0.4	0.0	18.8	0	2	960	961	0.00	5.3
27/12/2020 05:08	0.4	0.0	18.8	0	2	960	961	0.00	5.4
27/12/2020 06:08	0.4	0.0	18.9	0	2	961	961	0.00	5.4
27/12/2020 07:08	0.4	0.0	19.0	0	2	961	961	0.00	5.4
27/12/2020 08:08	0.3	0.0	19.1	0	2	960	961	0.00	5.3
27/12/2020 09:08	0.3	0.0	19.2	0	2	960	961	0.00	5.3
27/12/2020 10:08	0.3	0.0	19.3	0	2	960	961	0.00	5.2
27/12/2020 11:08	0.3	0.0	19.3	0	2	959	960	-0.54	5.2
27/12/2020 12:08	0.3	0.0	19.3	0	2	958	959	0.00	5.2
27/12/2020 13:08	0.3	0.0	19.4	0	2	958	959	0.00	5.2
27/12/2020 14:08	0.3	0.0	19.4	0	2	957	958	0.00	5.2
27/12/2020 15:08	0.3	0.0	19.4	0	2	957	958	0.00	5.3
27/12/2020 16:08	0.3	0.0	19.4	0	2	957	957	0.00	5.3
27/12/2020 17:08	0.3	0.0	19.5	0	3	956	957	0.00	5.3
27/12/2020 18:08	0.3	0.0	19.5	0	2	957	957	0.00	5.3
27/12/2020 19:08	0.3	0.0	19.6	0	2	957	958	0.00	5.2
27/12/2020 20:08	0.3	0.0	19.6	0	2	957	958	0.00	5.1
27/12/2020 21:08	0.2	0.0	19.7	0	2	957	958	0.00	5.1
27/12/2020 22:08	0.2	0.0	19.6	0	2	957	958	0.00	5.1
27/12/2020 23:08	0.2	0.0	19.7	0	2	957	958	0.00	5.1
28/12/2020 00:08	0.2	0.0	19.7	0	2	957	958	0.00	5.0
28/12/2020 01:08	0.2	0.0	19.7	0	3	956	957	0.00	5.0
28/12/2020 02:08	0.2	0.0	19.7	0	2	956	957	0.00	4.9
28/12/2020 03:08	0.2	0.0	19.7	0	2	956	957	0.00	4.9
28/12/2020 04:08	0.3	0.0	19.7	0	2	956	957	0.00	4.8
28/12/2020 05:08	0.3	0.0	19.8	0	2	957	958	0.00	4.8
28/12/2020 06:08	0.3	0.0	19.8	0	2	958	959	0.00	4.8
28/12/2020 07:08	0.3	0.0	19.8	0	2	959	960	0.00	4.8
28/12/2020 08:08	0.2	0.0	19.8	0	2	960	961	0.00	4.8
28/12/2020 09:08	0.3	0.0	19.9	0	2	962	963	0.00	4.8
28/12/2020 10:08	0.3	0.0	19.8	0	1	962	963	0.30	4.8
28/12/2020 11:08	0.3	0.0	19.8	0	2	963	964	0.30	4.8
28/12/2020 12:08	0.3	0.0	19.8	0	2	964	965	0.00	4.8
28/12/2020 13:08	0.3	0.0	19.9	0	2	965	965	-0.54	4.8
28/12/2020 14:08	0.3	0.0	19.9	0	2	965	966	0.00	4.8
28/12/2020 15:08	0.3	0.0	19.9	0	2	966	967	0.00	4.8
28/12/2020 16:08	0.3	0.0	19.9	0	2	967	967	0.00	4.8
28/12/2020 17:08	0.3	0.0	19.9	0	2	967	968	0.00	4.8
28/12/2020 18:08	0.3	0.0	19.9	0	2	968	968	0.00	4.8
28/12/2020 19:08	0.3	0.0	19.9	0	2	968	969	0.00	4.8
28/12/2020 20:08	0.3	0.0	19.9	0	2	969	970	0.30	4.8
28/12/2020 21:08	0.3	0.0	19.8	0	2	969	970	0.00	4.8
28/12/2020 22:08	0.3	0.0	19.8	0	2	970	971	0.00	4.8
28/12/2020 23:08	0.3	0.0	19.9	0	2	971	971	0.00	4.7
29/12/2020 00:08	0.3	0.0	19.8	0	2	971	972	0.00	4.7
29/12/2020 01:08	0.3	0.0	19.8	0	3	971	972	0.00	4.7
29/12/2020 02:08	0.3	0.0	19.7	0	2	972	972	0.00	4.6
29/12/2020 03:08	0.3	0.0	19.8	0	2	972	973	0.00	4.6
29/12/2020 04:08	0.3	0.0	19.7	0	2	973	974	0.00	4.6
29/12/2020 05:08	0.3	0.0	19.7	0	2	973	974	0.00	4.5
29/12/2020 06:08	0.3	0.0	19.8	0	2	974	975	0.00	4.4
29/12/2020 07:08	0.3	0.0	19.7	0	2	975	976	0.00	4.4
29/12/2020 08:08	0.3	0.0	19.7	0	2	976	977	0.00	4.4
29/12/2020 09:08	0.3	0.0	19.8	0	2	977	977	0.00	4.4
29/12/2020 10:08	0.3	0.0	19.7	0	2	978	978	0.00	4.3
29/12/2020 11:08	0.3	0.0	19.8	0	2	979	980	0.00	4.4
29/12/2020 12:08	0.3	0.0	19.7	0	2	980	981	0.30	4.4
29/12/2020 13:08	0.3	0.0	19.7	0	2	981	981	0.00	4.4
29/12/2020 14:08	0.3	0.0	19.8	0	2	982	982	0.00	4.4
29/12/2020 15:08	0.3	0.0	19.7	0	2	983	983	0.00	4.4
29/12/2020 16:08	0.3	0.0	19.7	0	2	983	984	0.00	4.5
29/12/2020 17:08	0.3	0.0	19.6	0	2	984	985	0.00	4.4
29/12/2020 18:08	0.3	0.0	19.4	0	2	985	985	0.00	4.4
29/12/2020 19:08	0.3	0.0	19.5	0	2	985	986	0.00	4.3
29/12/2020 20:08	0.4	0.0	19.3	0	2	986	986	0.00	4.3
29/12/2020 21:08	0.4	0.0	19.3	0	2	986	987	-0.54	4.1
29/12/2020 22:08	0.4	0.0	19.2	0	2	987	987	0.00	4.1
29/12/2020 23:08	0.4	0.0	19.2	0	2	987	988	0.00	4.0
30/12/2020 00:08	0.4	0.0	19.0	0	2	987	988	0.00	3.9
30/12/2020 01:08	0.4	0.0	19.0	0	2	987	988	0.00	3.9
30/12/2020 02:08	0.4	0.0	19.0	0	2	988	988	0.00	3.9
30/12/2020 03:08	0.4	0.0	19.0	0	2	988	989	-0.54	3.9
30/12/2020 04:08	0.4	0.0	18.8	0	2	988	989	0.00	3.9
30/12/2020 05:08	0.4	0.0	18.8	0	1	988	989	0.00	3.9
30/12/2020 06:08	0.4	0.0	18.8	0	2	988	989	0.00	3.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
30/12/2020 07:08	0.5	0.0	18.7	0	2	989	989	0.00	3.9
30/12/2020 08:08	0.5	0.0	18.8	0	2	989	990	0.00	3.9
30/12/2020 09:08	0.5	0.0	18.7	0	2	990	990	0.00	3.9
30/12/2020 10:08	0.5	0.0	18.7	0	2	990	991	0.00	3.9
30/12/2020 11:08	0.5	0.0	18.7	0	2	990	990	0.00	3.9
30/12/2020 12:08	0.5	0.0	18.7	0	2	990	991	0.00	3.9
30/12/2020 13:08	0.5	0.0	18.6	0	2	990	990	0.00	3.9
30/12/2020 14:08	0.5	0.0	18.6	0	2	990	990	0.00	3.9
30/12/2020 15:08	0.5	0.0	18.7	0	2	990	991	0.30	3.9
30/12/2020 16:08	0.5	0.0	18.6	0	2	991	991	0.00	4.0
30/12/2020 17:08	0.5	0.0	18.6	0	2	991	991	0.00	4.0
30/12/2020 18:08	0.5	0.0	18.6	0	2	991	992	0.00	4.0
30/12/2020 19:08	0.5	0.0	18.5	0	2	991	992	0.30	4.0
30/12/2020 20:08	0.5	0.0	18.5	0	2	991	992	0.00	4.0
30/12/2020 21:08	0.5	0.0	18.5	0	2	991	992	0.00	4.0
30/12/2020 22:08	0.5	0.0	18.5	0	2	992	992	0.00	3.9
30/12/2020 23:08	0.5	0.0	18.5	0	2	992	992	0.00	3.9
31/12/2020 00:08	0.5	0.0	18.5	0	2	992	992	0.00	3.9
31/12/2020 01:08	0.5	0.0	18.5	0	2	991	992	0.00	3.9
31/12/2020 02:08	0.5	0.0	18.4	0	2	992	992	0.00	3.9
31/12/2020 03:08	0.6	0.0	18.4	0	3	991	992	-0.54	3.8
31/12/2020 04:08	0.5	0.0	18.4	0	2	991	992	0.00	3.8
31/12/2020 05:08	0.5	0.0	18.4	0	2	991	992	0.00	3.8
31/12/2020 06:08	0.5	0.0	18.4	0	2	991	992	0.00	3.8
31/12/2020 07:08	0.6	0.0	18.4	0	2	991	992	0.00	3.8
31/12/2020 08:08	0.6	0.0	18.4	0	2	992	992	0.00	3.8
31/12/2020 09:08	0.6	0.0	18.5	0	2	992	993	0.00	3.8
31/12/2020 10:08	0.6	0.0	18.5	0	3	992	993	0.00	3.8
31/12/2020 11:08	0.6	0.0	18.4	0	3	993	993	0.00	3.8
31/12/2020 12:08	0.6	0.0	18.4	0	2	993	993	0.30	3.8
31/12/2020 13:08	0.6	0.0	18.4	0	2	993	993	0.00	3.8
31/12/2020 14:08	0.6	0.0	18.3	0	2	993	993	0.00	3.8
31/12/2020 15:08	0.6	0.0	18.4	0	2	993	994	0.00	3.9
31/12/2020 16:08	0.6	0.0	18.3	0	3	994	994	0.00	3.9
31/12/2020 17:08	0.6	0.0	18.3	0	2	994	995	0.00	3.9
31/12/2020 18:08	0.6	0.0	18.3	0	2	995	995	0.00	3.9
31/12/2020 19:08	0.6	0.0	18.3	0	2	995	996	-0.54	3.9
31/12/2020 20:08	0.6	0.0	18.3	0	2	996	996	0.00	3.9
31/12/2020 21:08	0.7	0.0	18.3	0	2	996	997	0.00	3.9
31/12/2020 22:08	0.7	0.0	18.3	0	2	997	997	0.00	3.8
31/12/2020 23:08	0.7	0.0	18.2	0	2	997	998	0.00	3.8
01/01/2021 00:08	0.7	0.0	18.1	0	2	997	998	0.00	3.8
01/01/2021 01:08	0.7	0.0	18.1	0	2	998	998	0.00	3.8
01/01/2021 02:08	0.7	0.0	18.1	0	2	998	999	0.00	3.8
01/01/2021 03:08	0.8	0.0	18.1	0	2	998	999	0.30	3.8
01/01/2021 04:08	0.8	0.0	18.1	0	2	998	999	0.00	3.8
01/01/2021 05:08	0.8	0.0	18.1	0	2	998	999	0.00	3.8
01/01/2021 06:08	0.8	0.0	18.0	0	3	999	999	0.00	3.7
01/01/2021 07:08	0.8	0.0	18.0	0	2	999	1000	0.00	3.7
01/01/2021 08:08	0.8	0.0	18.1	0	2	1000	1000	0.00	3.7
01/01/2021 09:08	0.8	0.0	18.0	0	2	1000	1001	0.00	3.7
01/01/2021 10:08	0.8	0.0	18.0	0	2	1001	1001	0.30	3.6
01/01/2021 11:08	0.8	0.0	18.0	0	2	1001	1002	0.00	3.6
01/01/2021 12:08	0.9	0.0	17.9	0	2	1001	1002	0.00	3.7
01/01/2021 13:08	0.9	0.0	17.8	0	2	1001	1001	0.00	3.7
01/01/2021 14:08	0.9	0.0	17.8	0	2	1001	1002	0.00	3.8
01/01/2021 15:08	0.9	0.0	17.8	0	1	1002	1002	0.00	3.8
01/01/2021 16:08	0.9	0.0	17.8	0	2	1002	1002	0.00	3.9
01/01/2021 17:08	0.9	0.0	17.8	0	2	1002	1003	0.00	3.9
01/01/2021 18:08	0.9	0.0	17.8	0	3	1003	1003	0.00	3.9
01/01/2021 19:08	0.9	0.0	17.8	0	3	1003	1004	0.30	3.8
01/01/2021 20:08	0.9	0.0	17.8	0	2	1004	1004	0.00	3.8
01/01/2021 21:08	0.9	0.0	17.8	0	3	1004	1005	-0.54	3.7
01/01/2021 22:08	0.9	0.0	17.8	0	2	1005	1005	-0.54	3.6
01/01/2021 23:08	1.0	0.0	17.8	0	2	1005	1005	0.00	3.6
02/01/2021 00:08	1.0	0.0	17.8	0	2	1005	1005	0.30	3.5
02/01/2021 01:08	1.0	0.0	17.8	0	2	1005	1006	0.00	3.4
02/01/2021 02:08	1.0	0.0	17.7	0	2	1005	1006	0.00	3.4
02/01/2021 03:08	1.0	0.0	17.6	0	2	1005	1006	0.00	3.4
02/01/2021 04:08	1.0	0.0	17.7	0	2	1005	1006	0.00	3.3
02/01/2021 05:08	1.0	0.0	17.7	0	2	1005	1005	0.00	3.3
02/01/2021 06:08	1.0	0.0	17.7	0	2	1005	1005	0.00	3.2
02/01/2021 07:08	1.0	0.0	17.6	0	3	1005	1005	0.00	3.2
02/01/2021 08:08	1.0	0.0	17.6	0	3	1005	1005	-0.30	3.1
02/01/2021 09:08	1.0	0.0	17.7	0	2	1005	1006	0.30	3.1
02/01/2021 10:08	1.0	0.0	17.6	0	2	1005	1005	-0.30	3.1
02/01/2021 11:08	1.0	0.0	17.6	0	2	1005	1005	0.30	3.1
02/01/2021 12:08	1.1	0.0	17.5	0	2	1005	1005	0.00	3.1
02/01/2021 13:08	1.1	0.0	17.5	0	2	1005	1005	0.00	3.1
02/01/2021 14:08	1.1	0.0	17.5	0	2	1005	1005	0.00	3.2
02/01/2021 15:08	1.1	0.0	17.5	0	2	1005	1005	0.30	3.2
02/01/2021 16:08	1.1	0.0	17.5	0	2	1005	1006	0.00	3.2
02/01/2021 17:08	1.1	0.0	17.5	0	3	1005	1006	0.00	3.3
02/01/2021 18:08	1.1	0.0	17.5	0	2	1006	1006	0.00	3.3
02/01/2021 19:08	1.1	0.0	17.6	0	2	1006	1007	0.00	3.3
02/01/2021 20:08	1.1	0.0	17.5	0	3	1006	1007	0.00	3.3
02/01/2021 21:08	1.1	0.0	17.6	0	2	1007	1007	-0.54	3.2
02/01/2021 22:08	1.1	0.0	17.6	0	2	1007	1008	0.00	3.2
02/01/2021 23:08	1.1	0.0	17.5	0	2	1007	1008	0.00	3.2
03/01/2021 00:08	1.1	0.0	17.5	0	2	1007	1008	0.00	3.2
03/01/2021 01:08	1.1	0.0	17.5	0	2	1007	1008	0.00	3.2
03/01/2021 02:08	1.1	0.0	17.4	0	2	1008	1008	0.00	3.2
03/01/2021 03:08	1.2	0.0	17.4	0	3	1007	1008	0.00	3.2
03/01/2021 04:08	1.2	0.0	17.3	0	2	1008	1008	0.00	3.1
03/01/2021 05:08	1.2	0.0	17.3	0	3	1008	1008	0.00	3.1
03/01/2021 06:08	1.2	0.0	17.4	0	2	1008	1008	0.00	3.1
03/01/2021 07:08	1.2	0.0	17.3	0	2	1008	1008	0.00	3.1
03/01/2021 08:08	1.2	0.0	17.3	0	2	1008	1009	0.00	3.1
03/01/2021 09:08	1.2	0.0	17.2	0	2	1009	1009	0.00	3.1
03/01/2021 10:08	1.2	0.0	17.2	0	2	1009	1010	0.30	3.1
03/01/2021 11:08	1.2	0.0	17.1	0	2	1009	1009	0.00	3.1
03/01/2021 12:08	1.2	0.0	17.1	0	2	1009	1010	0.30	3.1
03/01/2021 13:08	1.2	0.0	16.9	0	2	1009	1010	0.00	3.1
03/01/2021 14:08	1.3	0.0	16.9	0	2	1009	1010	0.00	3.2
03/01/2021 15:08	1.3	0.0	16.9	0	2	1010	1010	0.30	3.2
03/01/2021 16:08	1.3	0.0	16.8	0	2	1010	1010	0.00	3.3
03/01/2021 17:08	1.3	0.0	16.8	0	2	1010	1010	0.00	3.3
03/01/2021 18:08	1.3	0.0	16.8	0	2	1011	1011	0.00	3.3
03/01/2021 19:08	1.3	0.0	16.8	0	2	1011	1012	0.00	3.3
03/01/2021 20:08	1.3	0.0	16.8	0	2	1012	1012	0.00	3.3
03/01/2021 21:08	1.3	0.0	16.8	0	2	1012	1012	0.00	3.2
03/01/2021 22:08	1.3	0.0	16.8	0	2	1012	1013	0.00	3.2
03/01/2021 23:08	1.3	0.0	16.7	0	2	1013	1013	0.00	3.1
04/01/2021 00:08	1.3	0.0	16.7	0	2	1013	1013	0.00	3.1

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
04/01/2021 01:08	1.3	0.0	16.7	0	2	1013	1013	0.00	3.1
04/01/2021 02:08	1.3	0.0	16.7	0	2	1013	1013	0.00	3.1
04/01/2021 03:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.1
04/01/2021 04:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.1
04/01/2021 05:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.1
04/01/2021 06:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.0
04/01/2021 07:08	1.4	0.0	16.6	0	2	1013	1014	0.00	3.1
04/01/2021 08:08	1.4	0.0	16.7	0	2	1013	1014	0.00	3.1
04/01/2021 09:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.0
04/01/2021 10:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.0
04/01/2021 11:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.0
04/01/2021 12:08	1.4	0.0	16.5	0	2	1014	1014	0.00	3.1
04/01/2021 13:08	1.4	0.0	16.6	0	2	1013	1014	-0.54	3.1
04/01/2021 14:08	1.4	0.0	16.5	0	2	1013	1013	0.00	3.1
04/01/2021 15:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.2
04/01/2021 16:08	1.4	0.0	16.5	0	2	1013	1014	0.00	3.2
04/01/2021 17:08	1.4	0.0	16.5	0	2	1014	1014	0.00	3.3
04/01/2021 18:08	1.4	0.0	16.5	0	2	1014	1014	0.00	3.3
04/01/2021 19:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.3
04/01/2021 20:08	1.4	0.0	16.5	0	2	1014	1014	0.00	3.3
04/01/2021 21:08	1.5	0.0	16.6	0	2	1014	1014	0.00	3.3
04/01/2021 22:08	1.4	0.0	16.6	0	3	1014	1014	0.00	3.2
04/01/2021 23:08	1.4	0.0	16.5	0	2	1014	1014	0.00	3.2
05/01/2021 00:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.2
05/01/2021 01:08	1.4	0.0	16.6	0	2	1013	1014	0.00	3.2
05/01/2021 02:08	1.4	0.0	16.6	0	2	1013	1014	0.00	3.2
05/01/2021 03:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.2
05/01/2021 04:08	1.5	0.0	16.6	0	2	1013	1014	0.00	3.2
05/01/2021 05:08	1.5	0.0	16.6	0	2	1013	1013	-0.54	3.1
05/01/2021 06:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.1
05/01/2021 07:08	1.4	0.0	16.6	0	2	1013	1014	-0.54	3.1
05/01/2021 08:08	1.5	0.0	16.6	0	3	1013	1014	0.00	3.1
05/01/2021 09:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.1
05/01/2021 10:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.1
05/01/2021 11:08	1.4	0.0	16.6	0	2	1014	1014	0.00	3.1
05/01/2021 12:08	1.4	0.0	16.7	0	2	1013	1014	0.00	3.1
05/01/2021 13:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.1
05/01/2021 14:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.2
05/01/2021 15:08	1.4	0.0	16.6	0	2	1013	1013	0.00	3.2
05/01/2021 16:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.3
05/01/2021 17:08	1.4	0.0	16.7	0	2	1013	1013	0.00	3.3
05/01/2021 18:08	1.5	0.0	16.6	0	3	1013	1013	0.00	3.3
05/01/2021 19:08	1.5	0.0	16.6	0	2	1013	1014	0.00	3.2
05/01/2021 20:08	1.5	0.0	16.6	0	3	1013	1014	0.00	3.2
05/01/2021 21:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.2
05/01/2021 22:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.2
05/01/2021 23:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.1
06/01/2021 00:08	1.5	0.0	16.6	0	2	1013	1013	0.00	3.1
06/01/2021 01:08	1.5	0.0	16.6	0	3	1013	1013	0.00	3.1
06/01/2021 02:08	1.4	0.0	16.6	0	2	1012	1013	0.00	3.0
06/01/2021 03:08	1.4	0.0	16.6	0	2	1012	1013	0.00	2.9
06/01/2021 04:08	1.5	0.0	16.6	0	3	1012	1012	0.00	2.9
06/01/2021 05:08	1.4	0.0	16.6	0	2	1011	1012	0.00	2.9
06/01/2021 06:08	1.4	0.0	16.6	0	3	1011	1012	0.00	2.9
06/01/2021 07:08	1.5	0.0	16.6	0	2	1011	1012	0.00	2.9
06/01/2021 08:08	1.5	0.0	16.6	0	2	1012	1012	0.00	2.9
06/01/2021 09:08	1.5	0.0	16.6	0	3	1012	1012	0.00	2.9
06/01/2021 10:08	1.5	0.0	16.6	0	2	1012	1012	0.00	2.9
06/01/2021 11:08	1.4	0.0	16.6	0	2	1011	1012	0.00	2.9
06/01/2021 12:08	1.4	0.0	16.5	0	2	1010	1011	0.00	2.9
06/01/2021 13:08	1.5	0.0	16.6	0	2	1010	1010	0.30	2.9
06/01/2021 14:08	1.5	0.0	16.6	0	2	1010	1010	0.30	2.9
06/01/2021 15:08	1.5	0.0	16.6	0	2	1010	1010	0.00	2.9
06/01/2021 16:08	1.5	0.0	16.6	0	3	1010	1010	0.00	2.9
06/01/2021 17:08	1.5	0.0	16.6	0	2	1010	1010	0.00	2.9
06/01/2021 18:08	1.5	0.0	16.6	0	2	1010	1010	0.00	2.9
06/01/2021 19:08	1.5	0.0	16.6	0	2	1010	1010	0.00	2.8
06/01/2021 20:08	1.5	0.0	16.6	0	3	1010	1010	0.00	2.8
06/01/2021 21:08	1.5	0.0	16.6	0	2	1009	1010	0.00	2.8
06/01/2021 22:08	1.5	0.0	16.6	0	2	1009	1010	0.00	2.7
06/01/2021 23:08	1.5	0.0	16.6	0	2	1009	1009	0.00	2.7
07/01/2021 00:08	1.5	0.0	16.6	0	2	1009	1009	-0.30	2.6
07/01/2021 01:08	1.5	0.0	16.6	0	2	1008	1009	-0.30	2.6
07/01/2021 02:08	1.5	0.0	16.6	0	2	1008	1008	-0.30	2.6
07/01/2021 03:08	1.5	0.0	16.6	0	2	1008	1008	0.30	2.5
07/01/2021 04:08	1.5	0.0	16.6	0	3	1008	1008	-0.30	2.5
07/01/2021 05:08	1.5	0.0	16.5	0	2	1007	1008	-0.30	2.5
07/01/2021 06:08	1.5	0.0	16.6	0	2	1007	1007	-0.30	2.5
07/01/2021 07:08	1.5	0.0	16.5	0	2	1007	1007	0.00	2.5
07/01/2021 08:08	1.5	0.0	16.6	0	2	1007	1007	0.00	2.5
07/01/2021 09:08	1.5	0.0	16.6	0	2	1007	1008	0.00	2.6
07/01/2021 10:08	1.5	0.0	16.6	0	2	1007	1007	0.00	2.6
07/01/2021 11:08	1.5	0.0	16.5	0	3	1007	1007	0.00	2.6
07/01/2021 12:08	1.5	0.0	16.5	0	2	1005	1006	0.00	2.6
07/01/2021 13:08	1.4	0.0	16.5	0	2	1005	1006	0.00	2.6
07/01/2021 14:08	1.5	0.0	16.5	0	2	1005	1005	0.00	2.7
07/01/2021 15:08	1.5	0.0	16.6	0	2	1005	1005	0.00	2.7
07/01/2021 16:08	1.5	0.0	16.6	0	2	1005	1005	0.30	2.7
07/01/2021 17:08	1.5	0.0	16.5	0	2	1005	1005	0.30	2.7
07/01/2021 18:08	1.4	0.0	16.5	0	2	1005	1005	0.00	2.7
07/01/2021 19:08	1.5	0.0	16.6	0	2	1004	1005	0.00	2.7
07/01/2021 20:08	1.5	0.0	16.6	0	2	1005	1005	0.00	2.8
07/01/2021 21:08	1.5	0.0	16.6	0	2	1005	1005	0.00	2.8
07/01/2021 22:08	1.5	0.0	16.5	0	2	1005	1005	0.00	2.8
07/01/2021 23:08	1.5	0.0	16.5	0	2	1005	1005	0.00	2.8
08/01/2021 00:08	1.5	0.0	16.6	0	2	1004	1005	0.00	2.8
08/01/2021 01:08	1.5	0.0	16.6	0	3	1004	1005	0.00	2.8
08/01/2021 02:08	1.5	0.0	16.5	0	2	1004	1005	0.00	2.8
08/01/2021 03:08	1.5	0.0	16.5	0	2	1004	1005	0.00	2.8
08/01/2021 04:08	1.5	0.0	16.6	0	2	1004	1005	0.00	2.8
08/01/2021 05:08	1.5	0.0	16.5	0	2	1004	1005	0.00	2.8
08/01/2021 06:08	1.5	0.0	16.6	0	2	1005	1005	-0.54	2.8
08/01/2021 07:08	1.5	0.0	16.6	0	2	1005	1005	-0.54	2.8
08/01/2021 08:08	1.5	0.0	16.6	0	2	1005	1006	0.00	2.8
08/01/2021 09:08	1.5	0.0	16.5	0	2	1006	1006	0.00	2.8
08/01/2021 10:08	1.5	0.0	16.6	0	2	1006	1007	0.00	2.8
08/01/2021 11:08	1.5	0.0	16.6	0	2	1007	1007	0.00	2.8
08/01/2021 12:08	1.5	0.0	16.6	0	3	1007	1007	0.00	2.8
08/01/2021 13:08	1.5	0.0	16.6	0	3	1007	1007	0.00	2.8
08/01/2021 14:08	1.5	0.0	16.6	0	2	1007	1008	0.00	2.8
08/01/2021 15:08	1.5	0.0	16.6	0	3	1008	1009	0.00	2.9
08/01/2021 16:08	1.5	0.0	16.7	0	2	1009	1009	0.00	2.9
08/01/2021 17:08	1.5	0.0	16.7	0	2	1009	1010	0.00	2.9
08/01/2021 18:08	1.5	0.0	16.7	0	2	1010	1010	0.00	2.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
08/01/2021 19:08	1.5	0.0	16.7	0	2	1011	1011	0.00	2.9
08/01/2021 20:08	1.5	0.0	16.7	0	2	1011	1011	0.00	2.9
08/01/2021 21:08	1.5	0.0	16.7	0	3	1012	1012	0.00	2.9
08/01/2021 22:08	1.5	0.0	16.7	0	2	1012	1012	0.00	2.9
08/01/2021 23:08	1.5	0.0	16.7	0	2	1012	1013	-0.54	2.9
09/01/2021 00:08	1.5	0.0	16.7	0	3	1012	1013	-0.54	2.9
09/01/2021 01:08	1.5	0.0	16.7	0	2	1013	1013	0.00	2.9
09/01/2021 02:08	1.5	0.0	16.7	0	2	1013	1013	0.00	2.9
09/01/2021 03:08	1.5	0.0	16.7	0	2	1013	1014	0.00	2.8
09/01/2021 04:08	1.5	0.0	16.8	0	2	1013	1014	0.00	2.8
09/01/2021 05:08	1.5	0.0	16.7	0	3	1013	1014	0.00	2.8
09/01/2021 06:08	1.5	0.0	16.7	0	2	1014	1014	0.00	2.8
09/01/2021 07:08	1.5	0.0	16.7	0	2	1014	1015	0.30	2.8
09/01/2021 08:08	1.5	0.0	16.7	0	2	1015	1015	0.00	2.7
09/01/2021 09:08	1.5	0.0	16.7	0	2	1015	1015	0.00	2.6
09/01/2021 10:08	1.5	0.0	16.7	0	2	1015	1016	0.00	2.6

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS107A
Instrument ID:	GS #0300051
Start Date:	22/12/2020 13:00
End Date:	12/01/2021 11:00

Days of monitoring:	21
Monitoring Frequency (mins):	60
Total samples taken:	503

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Atmospheric Pressure	Flow	Temperature
Minimum	0.1	0.1	13.9	0	0	958	-0.03	-5.0
Maximum	3.6	0.2	19.8	1	1	1022	0.00	6.9
Range	3.5	0.1	5.9	0	1	64	0.03	12.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
22/12/2020 13:00	0.1	0.1	18.1	0	0	1002	-0.01	6.0
22/12/2020 14:00	0.1	0.1	18.5	0	0	1002	-0.01	6.0
22/12/2020 15:00	0.2	0.1	18.7	0	0	1002	-0.01	5.9
22/12/2020 16:00	0.2	0.1	18.7	0	0	1002	-0.01	5.2
22/12/2020 17:00	0.1	0.1	18.8	0	0	1002	-0.01	4.6
22/12/2020 18:00	0.1	0.1	18.8	0	0	1002	-0.01	3.8
22/12/2020 19:00	0.2	0.1	18.9	0	0	1001	-0.01	3.5
22/12/2020 20:00	0.2	0.1	18.7	0	0	1001	-0.02	3.4
22/12/2020 21:00	0.2	0.1	18.8	0	0	1001	-0.01	3.6
22/12/2020 22:00	0.2	0.1	18.8	0	0	1001	-0.02	4.3
22/12/2020 23:00	0.2	0.1	18.9	0	0	1001	-0.02	4.1
23/12/2020 00:00	0.2	0.1	19.0	0	0	1000	-0.01	4.1
23/12/2020 01:00	0.2	0.1	19.0	0	0	999	-0.01	4.2
23/12/2020 02:00	0.2	0.1	19.0	0	0	999	-0.01	4.3
23/12/2020 03:00	0.2	0.1	19.0	0	0	999	-0.01	4.3
23/12/2020 04:00	0.2	0.1	19.0	0	0	998	-0.02	4.3
23/12/2020 05:00	0.2	0.1	18.9	0	0	997	-0.01	4.2
23/12/2020 06:00	0.2	0.1	18.9	0	0	997	-0.02	4.2
23/12/2020 07:00	0.2	0.1	18.9	0	0	996	-0.01	4.3
23/12/2020 08:00	0.2	0.1	18.9	0	0	996	-0.01	4.3
23/12/2020 09:00	0.3	0.2	18.9	0	0	996	-0.02	4.4
23/12/2020 10:00	0.2	0.2	19.0	0	0	996	-0.01	4.7
23/12/2020 11:00	0.2	0.2	19.0	0	0	996	-0.01	5.2
23/12/2020 12:00	0.2	0.2	19.2	0	0	995	-0.01	5.5
23/12/2020 13:00	0.2	0.2	19.3	0	0	995	-0.01	5.7
23/12/2020 14:00	0.2	0.2	19.4	0	0	995	-0.01	6.0
23/12/2020 15:00	0.2	0.2	19.5	0	0	995	-0.01	5.9
23/12/2020 16:00	0.3	0.2	19.5	0	0	996	-0.01	5.6
23/12/2020 17:00	0.2	0.2	19.5	0	0	997	-0.01	5.4
23/12/2020 18:00	0.2	0.2	19.4	0	0	998	-0.01	5.4
23/12/2020 19:00	0.2	0.2	19.4	0	0	999	-0.02	5.4
23/12/2020 20:00	0.2	0.2	19.5	0	0	1000	-0.01	5.4
23/12/2020 21:00	0.2	0.2	19.5	0	0	1002	0.00	5.5
23/12/2020 22:00	0.3	0.2	19.4	0	0	1003	-0.01	5.6
23/12/2020 23:00	0.3	0.1	19.4	0	0	1004	-0.01	5.5
24/12/2020 00:00	0.3	0.1	19.4	0	0	1005	-0.02	5.0
24/12/2020 01:00	0.2	0.1	19.3	0	0	1007	-0.01	4.3
24/12/2020 02:00	0.2	0.1	19.2	0	0	1007	-0.01	3.5
24/12/2020 03:00	0.2	0.1	19.3	0	0	1009	-0.01	3.0
24/12/2020 04:00	0.3	0.1	19.0	0	0	1009	-0.01	2.2
24/12/2020 05:00	0.2	0.1	18.9	1	0	1010	-0.01	1.4
24/12/2020 06:00	0.3	0.1	18.8	1	0	1010	-0.02	0.8
24/12/2020 07:00	0.2	0.1	18.7	1	0	1011	-0.01	0.3
24/12/2020 08:00	0.3	0.1	19.1	1	0	1012	-0.02	0.2
24/12/2020 09:00	0.3	0.1	19.0	1	0	1013	-0.02	0.4
24/12/2020 10:00	0.3	0.1	18.8	1	0	1014	-0.01	0.7
24/12/2020 11:00	0.3	0.1	18.9	1	0	1015	-0.02	2.1
24/12/2020 12:00	0.3	0.1	19.1	0	0	1016	-0.01	4.5
24/12/2020 13:00	0.3	0.1	19.2	0	0	1016	-0.02	4.1
24/12/2020 14:00	0.3	0.1	19.4	0	0	1017	-0.01	4.4
24/12/2020 15:00	0.3	0.1	19.4	0	0	1017	-0.01	4.1
24/12/2020 16:00	0.3	0.1	19.5	0	0	1019	-0.01	2.9
24/12/2020 17:00	0.3	0.1	19.3	0	0	1019	-0.01	2.0
24/12/2020 18:00	0.3	0.1	19.2	1	0	1020	-0.01	1.1
24/12/2020 19:00	0.3	0.1	19.0	1	0	1020	-0.01	0.7
24/12/2020 20:00	0.4	0.1	19.0	1	0	1021	-0.02	0.6
24/12/2020 21:00	0.4	0.1	19.4	1	0	1021	-0.01	-0.1
24/12/2020 22:00	0.4	0.1	18.8	1	0	1022	-0.01	-0.6
24/12/2020 23:00	0.3	0.1	18.7	1	0	1022	-0.02	-1.0
25/12/2020 00:00	0.4	0.1	18.7	1	0	1022	-0.01	-1.2
25/12/2020 01:00	0.3	0.1	18.7	1	0	1022	-0.02	-1.5
25/12/2020 02:00	0.3	0.1	18.6	1	0	1022	-0.01	-1.5
25/12/2020 03:00	0.3	0.1	18.7	1	0	1022	-0.02	-2.3
25/12/2020 04:00	0.3	0.1	18.7	1	0	1022	-0.02	-2.7
25/12/2020 05:00	0.3	0.1	19.0	1	0	1022	-0.01	-2.9
25/12/2020 06:00	0.3	0.1	18.3	1	0	1022	-0.03	-2.9
25/12/2020 07:00	0.3	0.1	18.3	1	0	1022	-0.02	-3.3
25/12/2020 08:00	0.3	0.1	18.3	1	0	1022	-0.01	-3.5
25/12/2020 09:00	0.3	0.1	18.2	1	0	1022	-0.02	-3.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
25/12/2020 10:00	0.4	0.1	18.2	1	0	1022	-0.02	-2.8
25/12/2020 11:00	0.4	0.1	18.3	1	0	1022	-0.02	-1.5
25/12/2020 12:00	0.3	0.1	18.4	1	0	1021	-0.02	-0.1
25/12/2020 13:00	0.4	0.1	18.6	1	0	1021	-0.02	1.2
25/12/2020 14:00	0.4	0.1	18.7	1	0	1021	-0.01	1.4
25/12/2020 15:00	0.3	0.1	18.8	1	0	1020	-0.01	1.5
25/12/2020 16:00	0.4	0.1	18.9	1	0	1019	-0.01	1.1
25/12/2020 17:00	0.3	0.1	18.8	1	0	1018	-0.01	1.0
25/12/2020 18:00	0.4	0.1	18.8	1	0	1017	-0.01	1.1
25/12/2020 19:00	0.4	0.1	18.8	1	0	1017	-0.01	1.2
25/12/2020 20:00	0.3	0.1	18.8	1	0	1017	-0.01	1.1
25/12/2020 21:00	0.3	0.1	18.8	1	0	1015	-0.01	1.3
25/12/2020 22:00	0.4	0.1	18.8	1	0	1015	-0.01	1.6
25/12/2020 23:00	0.3	0.1	18.9	1	0	1014	-0.01	2.0
26/12/2020 00:00	0.4	0.1	19.0	1	0	1013	-0.01	2.4
26/12/2020 01:00	0.3	0.1	19.0	1	0	1012	-0.01	2.5
26/12/2020 02:00	0.4	0.1	19.1	1	0	1011	-0.01	2.9
26/12/2020 03:00	0.3	0.1	19.1	0	0	1010	-0.02	3.3
26/12/2020 04:00	0.3	0.1	19.2	0	0	1009	-0.01	3.8
26/12/2020 05:00	0.4	0.1	19.3	0	0	1008	-0.01	4.2
26/12/2020 06:00	0.3	0.1	19.3	0	0	1007	-0.02	4.5
26/12/2020 07:00	0.3	0.1	19.4	0	0	1007	-0.01	4.7
26/12/2020 08:00	0.3	0.1	19.5	0	0	1006	-0.02	5.1
26/12/2020 09:00	0.3	0.1	19.6	0	0	1005	-0.01	5.0
26/12/2020 10:00	0.2	0.1	19.6	0	0	1004	-0.02	5.1
26/12/2020 11:00	0.3	0.1	19.6	0	0	1003	-0.01	5.5
26/12/2020 12:00	0.2	0.1	19.7	0	0	1001	-0.01	6.0
26/12/2020 13:00	0.3	0.1	19.7	0	0	999	-0.01	6.1
26/12/2020 14:00	0.2	0.1	19.8	0	1	996	-0.01	6.2
26/12/2020 15:00	0.2	0.1	19.8	0	1	994	-0.02	6.2
26/12/2020 16:00	0.2	0.1	19.8	0	1	992	-0.01	6.1
26/12/2020 17:00	0.2	0.1	19.8	0	1	990	-0.01	6.1
26/12/2020 18:00	0.2	0.1	19.8	0	1	988	-0.01	6.2
26/12/2020 19:00	0.2	0.1	19.8	0	1	985	-0.01	6.1
26/12/2020 20:00	0.2	0.1	19.8	0	1	982	-0.01	6.2
26/12/2020 21:00	0.2	0.1	19.7	0	1	979	-0.01	6.2
26/12/2020 22:00	0.2	0.1	19.7	0	1	976	-0.01	6.3
26/12/2020 23:00	0.3	0.1	19.7	0	1	972	-0.01	6.5
27/12/2020 00:00	0.2	0.1	19.7	0	1	970	-0.02	6.5
27/12/2020 01:00	0.2	0.1	19.6	0	1	967	-0.01	6.4
27/12/2020 02:00	0.2	0.1	19.5	0	1	965	-0.01	6.4
27/12/2020 03:00	0.2	0.1	19.3	0	1	964	-0.01	5.8
27/12/2020 04:00	0.2	0.1	18.9	0	1	963	-0.01	5.4
27/12/2020 05:00	0.2	0.1	18.8	0	1	963	-0.01	4.7
27/12/2020 06:00	0.2	0.1	18.7	0	1	963	-0.02	3.7
27/12/2020 07:00	0.2	0.1	18.5	0	0	962	-0.01	2.6
27/12/2020 08:00	0.2	0.1	18.4	0	0	963	-0.01	2.3
27/12/2020 09:00	0.2	0.1	18.2	0	0	963	-0.02	2.3
27/12/2020 10:00	0.3	0.1	18.1	0	0	962	-0.01	2.5
27/12/2020 11:00	0.3	0.1	17.9	0	0	962	-0.01	3.3
27/12/2020 12:00	0.3	0.1	17.9	0	0	961	-0.02	4.5
27/12/2020 13:00	0.3	0.1	18.0	0	1	960	-0.02	5.1
27/12/2020 14:00	0.2	0.1	17.9	0	1	960	-0.02	4.8
27/12/2020 15:00	0.3	0.1	17.8	0	1	959	-0.02	5.5
27/12/2020 16:00	0.2	0.1	17.5	0	1	959	-0.01	4.3
27/12/2020 17:00	0.2	0.1	16.9	0	0	959	-0.01	3.1
27/12/2020 18:00	0.2	0.1	16.5	0	0	959	-0.01	2.2
27/12/2020 19:00	0.3	0.1	16.3	0	0	959	-0.01	1.7
27/12/2020 20:00	0.2	0.1	16.2	0	0	959	-0.02	2.2
27/12/2020 21:00	0.2	0.1	16.0	0	0	959	-0.02	2.2
27/12/2020 22:00	0.3	0.1	15.9	0	0	959	-0.01	2.1
27/12/2020 23:00	0.3	0.1	15.7	1	0	959	-0.02	1.6
28/12/2020 00:00	0.3	0.1	15.6	1	0	959	-0.01	1.6
28/12/2020 01:00	0.3	0.1	15.5	1	0	959	-0.02	1.1
28/12/2020 02:00	0.3	0.1	15.3	1	0	958	-0.02	0.9
28/12/2020 03:00	0.3	0.1	15.2	1	0	958	-0.02	1.0
28/12/2020 04:00	0.4	0.1	15.0	1	0	958	-0.02	1.3
28/12/2020 05:00	0.3	0.1	15.0	1	0	958	-0.01	1.7
28/12/2020 06:00	0.4	0.1	15.0	1	0	959	-0.01	1.7
28/12/2020 07:00	0.3	0.1	15.0	1	0	961	-0.01	1.7
28/12/2020 08:00	0.3	0.1	14.7	1	0	961	-0.01	1.7
28/12/2020 09:00	0.3	0.1	14.7	1	0	963	-0.01	1.8
28/12/2020 10:00	0.4	0.1	14.7	1	0	964	-0.01	2.1
28/12/2020 11:00	0.3	0.1	14.7	1	0	965	-0.02	2.5
28/12/2020 12:00	0.3	0.1	14.7	0	0	966	-0.01	3.0
28/12/2020 13:00	0.3	0.1	14.8	0	0	966	-0.01	3.7
28/12/2020 14:00	0.3	0.1	14.8	0	0	967	-0.01	3.8
28/12/2020 15:00	0.3	0.1	14.7	0	0	968	-0.01	3.6
28/12/2020 16:00	0.3	0.1	14.6	0	0	968	-0.01	3.1
28/12/2020 17:00	0.2	0.1	14.2	0	0	969	-0.02	2.7
28/12/2020 18:00	0.2	0.1	14.1	0	0	969	-0.01	1.8
28/12/2020 19:00	0.3	0.1	14.0	1	0	970	-0.01	1.5
28/12/2020 20:00	0.3	0.1	14.0	1	0	970	-0.01	1.6
28/12/2020 21:00	0.3	0.1	14.0	1	0	971	-0.01	1.9
28/12/2020 22:00	0.3	0.1	14.0	1	0	972	-0.01	1.9
28/12/2020 23:00	0.3	0.1	14.0	1	0	972	-0.01	1.9
29/12/2020 00:00	0.3	0.1	14.0	1	0	972	-0.01	1.1
29/12/2020 01:00	0.3	0.1	14.0	1	0	973	-0.01	1.2

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
29/12/2020 02:00	0.4	0.1	14.0	1	0	973	-0.01	1.2
29/12/2020 03:00	0.3	0.1	14.0	1	0	974	-0.02	0.8
29/12/2020 04:00	0.3	0.1	13.9	1	0	975	-0.01	-0.1
29/12/2020 05:00	0.4	0.1	13.9	1	0	975	-0.02	-0.3
29/12/2020 06:00	0.3	0.1	13.9	1	0	975	-0.02	0.0
29/12/2020 07:00	0.4	0.1	13.9	1	0	976	-0.01	0.1
29/12/2020 08:00	0.4	0.1	14.0	1	0	977	-0.01	0.7
29/12/2020 09:00	0.3	0.1	14.1	1	0	978	-0.01	0.8
29/12/2020 10:00	0.4	0.1	14.2	1	0	979	-0.01	1.3
29/12/2020 11:00	0.3	0.1	14.3	1	0	980	-0.02	2.0
29/12/2020 12:00	0.4	0.1	14.6	1	0	981	-0.02	3.0
29/12/2020 13:00	0.4	0.1	14.9	0	0	982	-0.01	3.6
29/12/2020 14:00	0.3	0.1	15.0	0	0	983	-0.01	3.5
29/12/2020 15:00	0.3	0.1	15.0	0	0	984	-0.01	2.6
29/12/2020 16:00	0.3	0.1	15.0	0	0	985	-0.01	1.6
29/12/2020 17:00	0.3	0.1	14.8	1	0	986	-0.01	0.9
29/12/2020 18:00	0.2	0.1	14.7	1	0	986	-0.01	0.2
29/12/2020 19:00	0.3	0.1	14.6	1	0	987	-0.01	-0.9
29/12/2020 20:00	0.3	0.1	14.5	1	0	987	-0.01	-1.6
29/12/2020 21:00	0.3	0.1	14.5	1	0	988	-0.02	-2.0
29/12/2020 22:00	0.5	0.1	14.4	1	0	988	-0.02	-2.4
29/12/2020 23:00	0.4	0.1	14.4	1	0	989	-0.03	-2.7
30/12/2020 00:00	0.3	0.1	14.5	1	0	989	-0.01	-2.7
30/12/2020 01:00	0.4	0.1	14.7	1	0	989	-0.02	-1.7
30/12/2020 02:00	0.4	0.1	14.8	1	0	989	-0.03	-1.1
30/12/2020 03:00	0.4	0.1	14.9	1	0	989	-0.02	-0.8
30/12/2020 04:00	0.4	0.1	14.9	1	0	989	-0.01	-0.6
30/12/2020 05:00	0.4	0.1	15.0	1	0	990	-0.02	-0.3
30/12/2020 06:00	0.4	0.1	15.0	1	0	990	-0.02	0.0
30/12/2020 07:00	0.5	0.1	15.1	1	0	990	-0.02	0.1
30/12/2020 08:00	0.3	0.1	15.1	1	0	990	-0.02	0.1
30/12/2020 09:00	0.4	0.1	15.2	1	0	991	-0.01	0.4
30/12/2020 10:00	0.3	0.1	15.3	1	0	991	-0.02	0.7
30/12/2020 11:00	0.4	0.1	15.4	1	0	992	-0.01	1.4
30/12/2020 12:00	0.3	0.1	15.5	1	0	991	-0.01	2.1
30/12/2020 13:00	0.3	0.1	15.6	1	0	991	-0.01	2.4
30/12/2020 14:00	0.3	0.1	15.7	1	0	992	-0.01	3.0
30/12/2020 15:00	0.3	0.1	15.8	1	0	992	-0.02	2.9
30/12/2020 16:00	0.2	0.1	15.7	1	0	992	-0.01	2.3
30/12/2020 17:00	0.3	0.1	15.7	1	0	992	-0.01	2.1
30/12/2020 18:00	0.3	0.1	15.7	1	0	993	-0.01	1.8
30/12/2020 19:00	0.3	0.1	15.6	1	0	993	-0.01	1.6
30/12/2020 20:00	0.3	0.1	15.6	1	0	993	-0.01	1.3
30/12/2020 21:00	0.3	0.1	15.6	1	0	993	-0.01	1.0
30/12/2020 22:00	0.2	0.1	15.5	1	0	993	-0.02	0.7
30/12/2020 23:00	0.4	0.1	15.5	1	0	993	-0.02	0.5
31/12/2020 00:00	0.3	0.1	15.4	1	0	993	-0.01	0.4
31/12/2020 01:00	0.4	0.1	15.4	1	0	993	-0.01	0.3
31/12/2020 02:00	0.3	0.1	15.4	1	0	993	-0.01	0.4
31/12/2020 03:00	0.3	0.1	15.4	1	0	993	-0.02	0.5
31/12/2020 04:00	0.3	0.1	15.4	1	0	993	-0.01	0.6
31/12/2020 05:00	0.4	0.1	15.5	1	0	993	-0.01	0.7
31/12/2020 06:00	0.3	0.1	15.5	1	0	993	-0.01	0.7
31/12/2020 07:00	0.3	0.1	15.5	1	0	993	-0.01	0.8
31/12/2020 08:00	0.3	0.1	15.5	1	0	993	-0.01	0.7
31/12/2020 09:00	0.3	0.1	15.5	1	0	994	-0.02	0.8
31/12/2020 10:00	0.3	0.1	15.5	1	0	994	-0.02	0.9
31/12/2020 11:00	0.3	0.1	15.6	1	0	994	-0.01	1.0
31/12/2020 12:00	0.3	0.1	15.6	1	0	994	-0.01	1.3
31/12/2020 13:00	0.4	0.1	15.7	1	0	994	-0.01	2.6
31/12/2020 14:00	0.3	0.1	15.8	1	0	994	-0.01	2.9
31/12/2020 15:00	0.3	0.1	15.8	1	0	994	-0.02	2.9
31/12/2020 16:00	0.3	0.1	15.9	1	0	995	-0.01	2.2
31/12/2020 17:00	0.3	0.1	15.8	1	0	996	-0.01	1.6
31/12/2020 18:00	0.3	0.1	15.8	1	0	996	-0.01	1.5
31/12/2020 19:00	0.2	0.1	15.7	1	0	996	-0.02	1.3
31/12/2020 20:00	0.3	0.1	15.7	1	0	997	-0.01	1.1
31/12/2020 21:00	0.3	0.1	15.6	1	0	998	-0.01	1.0
31/12/2020 22:00	0.3	0.1	15.6	1	0	998	-0.01	0.7
31/12/2020 23:00	0.4	0.1	15.6	1	0	999	-0.01	0.9
01/01/2021 00:00	0.3	0.1	15.6	1	0	999	-0.01	0.9
01/01/2021 01:00	0.3	0.1	15.7	1	0	999	-0.01	0.9
01/01/2021 02:00	0.3	0.1	15.7	1	0	999	-0.02	0.8
01/01/2021 03:00	0.3	0.1	15.7	1	0	1000	-0.01	0.8
01/01/2021 04:00	0.3	0.1	15.7	1	0	1000	-0.01	0.9
01/01/2021 05:00	0.3	0.1	15.7	1	0	1000	-0.01	0.9
01/01/2021 06:00	0.3	0.1	15.7	1	0	1000	-0.02	0.9
01/01/2021 07:00	0.4	0.1	15.7	1	0	1000	-0.01	0.8
01/01/2021 08:00	0.3	0.1	15.7	1	0	1001	-0.01	0.0
01/01/2021 09:00	0.3	0.1	15.6	1	0	1002	-0.02	-0.3
01/01/2021 10:00	0.4	0.1	15.8	1	0	1002	-0.01	0.5
01/01/2021 11:00	0.3	0.1	15.9	1	0	1002	-0.01	1.9
01/01/2021 12:00	0.3	0.1	16.2	1	0	1003	-0.01	3.4
01/01/2021 13:00	0.3	0.1	16.3	0	0	1002	-0.01	3.9
01/01/2021 14:00	0.3	0.1	16.5	0	0	1002	-0.01	4.0
01/01/2021 15:00	0.2	0.1	16.5	0	0	1003	-0.01	3.7
01/01/2021 16:00	0.3	0.1	16.5	0	0	1003	-0.02	2.9
01/01/2021 17:00	0.3	0.1	16.4	0	0	1003	-0.01	1.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
01/01/2021 18:00	0.2	0.1	16.3	1	0	1004	-0.01	0.4
01/01/2021 19:00	0.4	0.1	16.1	1	0	1004	-0.02	-0.7
01/01/2021 20:00	0.3	0.1	16.0	1	0	1005	-0.02	-1.5
01/01/2021 21:00	0.3	0.1	15.9	1	0	1005	-0.01	-1.7
01/01/2021 22:00	0.3	0.1	15.8	1	0	1006	-0.01	-2.2
01/01/2021 23:00	0.3	0.1	15.7	1	0	1006	-0.01	-2.7
02/01/2021 00:00	0.3	0.1	15.8	1	0	1006	-0.02	-2.7
02/01/2021 01:00	0.4	0.1	15.8	1	0	1006	-0.01	-3.1
02/01/2021 02:00	0.4	0.1	15.8	1	0	1007	-0.02	-3.0
02/01/2021 03:00	0.4	0.1	15.8	1	0	1007	-0.01	-3.5
02/01/2021 04:00	0.4	0.1	16.0	1	0	1007	-0.02	-3.9
02/01/2021 05:00	0.4	0.1	16.0	1	0	1006	-0.01	-4.0
02/01/2021 06:00	0.4	0.1	16.1	1	0	1006	-0.02	-4.3
02/01/2021 07:00	0.4	0.1	16.1	1	0	1006	-0.02	-4.5
02/01/2021 08:00	0.4	0.1	16.1	1	0	1006	-0.02	-4.6
02/01/2021 09:00	0.4	0.1	16.1	1	0	1006	-0.02	-3.6
02/01/2021 10:00	0.5	0.1	16.3	1	0	1006	-0.02	-2.2
02/01/2021 11:00	0.4	0.1	16.4	1	0	1006	-0.02	-1.2
02/01/2021 12:00	0.4	0.1	16.7	1	0	1006	-0.02	0.9
02/01/2021 13:00	0.4	0.1	17.1	1	0	1006	-0.01	2.7
02/01/2021 14:00	0.3	0.1	17.5	1	0	1006	-0.01	2.3
02/01/2021 15:00	0.3	0.1	17.5	1	0	1006	-0.01	1.3
02/01/2021 16:00	0.3	0.1	17.5	1	0	1006	-0.01	1.0
02/01/2021 17:00	0.3	0.1	17.4	1	0	1007	-0.01	0.8
02/01/2021 18:00	0.3	0.1	17.4	1	0	1007	-0.01	0.7
02/01/2021 19:00	0.4	0.1	17.3	1	0	1007	-0.01	0.2
02/01/2021 20:00	0.3	0.1	17.2	1	0	1008	-0.02	-0.3
02/01/2021 21:00	0.3	0.1	17.1	1	0	1008	-0.01	-0.6
02/01/2021 22:00	0.3	0.1	17.1	1	0	1008	-0.02	-0.5
02/01/2021 23:00	0.3	0.1	17.0	1	0	1008	-0.02	-0.2
03/01/2021 00:00	0.4	0.1	17.0	1	0	1009	-0.02	-0.5
03/01/2021 01:00	0.3	0.1	17.0	1	0	1009	-0.01	-0.5
03/01/2021 02:00	0.4	0.1	17.0	1	0	1009	-0.01	-0.3
03/01/2021 03:00	0.4	0.1	17.2	1	0	1009	-0.01	0.0
03/01/2021 04:00	0.4	0.1	17.2	1	0	1009	-0.01	-0.4
03/01/2021 05:00	0.3	0.1	17.2	1	0	1009	-0.01	-0.6
03/01/2021 06:00	0.2	0.1	17.1	1	0	1009	-0.02	-0.5
03/01/2021 07:00	0.3	0.1	17.1	1	0	1009	-0.02	-0.6
03/01/2021 08:00	0.3	0.1	17.1	1	0	1009	-0.02	-0.6
03/01/2021 09:00	0.3	0.1	17.2	1	0	1010	-0.01	-0.4
03/01/2021 10:00	0.4	0.1	17.3	1	0	1010	-0.02	0.1
03/01/2021 11:00	0.4	0.1	17.6	1	0	1011	-0.01	2.0
03/01/2021 12:00	0.3	0.1	17.7	1	0	1010	-0.01	4.2
03/01/2021 13:00	0.5	0.1	18.0	0	0	1010	-0.02	5.0
03/01/2021 14:00	0.5	0.1	18.4	0	0	1010	-0.01	4.0
03/01/2021 15:00	0.3	0.1	18.4	0	0	1011	-0.01	3.5
03/01/2021 16:00	0.4	0.1	18.3	0	0	1011	-0.01	2.5
03/01/2021 17:00	0.3	0.1	18.1	0	0	1011	-0.01	1.6
03/01/2021 18:00	0.4	0.1	17.9	0	0	1011	-0.01	1.4
03/01/2021 19:00	0.3	0.1	17.8	1	0	1012	-0.02	0.9
03/01/2021 20:00	0.3	0.1	17.6	1	0	1013	-0.02	0.5
03/01/2021 21:00	0.3	0.1	17.5	1	0	1013	-0.01	-0.1
03/01/2021 22:00	0.4	0.1	17.4	1	0	1013	-0.01	-0.3
03/01/2021 23:00	0.3	0.1	17.3	1	0	1014	-0.01	-1.0
04/01/2021 00:00	0.3	0.1	17.3	1	0	1014	-0.02	-0.2
04/01/2021 01:00	0.3	0.1	17.3	1	0	1014	-0.02	-0.2
04/01/2021 02:00	0.3	0.1	17.3	1	0	1014	-0.02	0.0
04/01/2021 03:00	0.3	0.1	17.3	1	0	1014	-0.01	-0.7
04/01/2021 04:00	0.3	0.1	17.3	1	0	1014	-0.01	-1.2
04/01/2021 05:00	0.4	0.1	17.2	1	0	1014	-0.03	-1.4
04/01/2021 06:00	0.3	0.1	17.3	1	0	1014	-0.02	-0.7
04/01/2021 07:00	0.3	0.1	17.3	1	0	1014	-0.02	-0.2
04/01/2021 08:00	0.3	0.1	17.4	1	0	1014	-0.01	-0.4
04/01/2021 09:00	0.3	0.1	17.4	1	0	1015	-0.02	-0.1
04/01/2021 10:00	0.3	0.1	17.5	1	0	1015	-0.02	0.3
04/01/2021 11:00	0.3	0.1	17.6	1	0	1015	-0.01	1.8
04/01/2021 12:00	0.3	0.1	17.8	1	0	1015	-0.01	2.3
04/01/2021 13:00	0.4	0.1	17.9	1	0	1015	-0.01	3.0
04/01/2021 14:00	0.4	0.1	18.1	0	0	1014	-0.01	3.5
04/01/2021 15:00	0.4	0.1	18.2	0	0	1014	-0.01	3.2
04/01/2021 16:00	0.3	0.1	18.2	0	0	1014	-0.01	2.6
04/01/2021 17:00	0.4	0.1	18.1	1	0	1015	-0.02	2.0
04/01/2021 18:00	0.3	0.1	18.0	1	0	1015	-0.01	1.5
04/01/2021 19:00	0.4	0.1	18.0	1	0	1015	-0.01	1.5
04/01/2021 20:00	0.3	0.1	17.9	1	0	1015	-0.01	1.2
04/01/2021 21:00	0.3	0.1	17.9	1	0	1015	-0.02	1.0
04/01/2021 22:00	0.2	0.1	17.9	1	0	1015	-0.01	1.3
04/01/2021 23:00	0.3	0.1	17.9	1	0	1015	-0.01	1.3
05/01/2021 00:00	0.3	0.1	17.9	1	0	1015	-0.01	1.4
05/01/2021 01:00	0.3	0.1	17.9	1	0	1015	0.00	1.2
05/01/2021 02:00	0.3	0.1	17.8	1	0	1015	-0.01	0.8
05/01/2021 03:00	0.4	0.1	17.8	1	0	1014	-0.02	0.6
05/01/2021 04:00	0.3	0.1	17.8	1	0	1014	-0.02	0.2
05/01/2021 05:00	0.3	0.1	17.7	1	0	1014	-0.01	0.4
05/01/2021 06:00	0.3	0.1	17.7	1	0	1014	-0.01	0.7
05/01/2021 07:00	0.4	0.1	17.7	1	0	1014	-0.01	0.7
05/01/2021 08:00	0.4	0.1	17.7	1	0	1014	-0.01	0.8
05/01/2021 09:00	0.3	0.1	17.8	1	0	1015	-0.01	0.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
05/01/2021 10:00	0.3	0.1	17.8	1	0	1015	-0.01	1.4
05/01/2021 11:00	0.3	0.1	17.9	1	0	1015	-0.01	1.9
05/01/2021 12:00	0.3	0.1	17.9	1	0	1015	-0.02	3.2
05/01/2021 13:00	0.4	0.1	18.2	0	0	1014	-0.01	4.8
05/01/2021 14:00	0.5	0.1	18.6	0	0	1014	-0.01	4.9
05/01/2021 15:00	0.5	0.1	18.7	0	0	1014	-0.01	4.0
05/01/2021 16:00	0.4	0.1	18.6	0	0	1014	-0.02	2.6
05/01/2021 17:00	0.4	0.1	18.4	0	0	1014	-0.02	2.1
05/01/2021 18:00	0.5	0.1	18.2	0	0	1014	-0.01	1.4
05/01/2021 19:00	0.3	0.1	18.1	1	0	1014	-0.02	1.4
05/01/2021 20:00	0.3	0.1	18.0	1	0	1015	-0.01	1.4
05/01/2021 21:00	0.4	0.1	17.9	1	0	1014	-0.01	1.4
05/01/2021 22:00	0.3	0.1	17.9	1	0	1014	-0.01	0.7
05/01/2021 23:00	0.3	0.1	17.8	1	0	1014	-0.01	0.1
06/01/2021 00:00	0.3	0.1	17.7	1	0	1014	-0.02	-0.5
06/01/2021 01:00	0.3	0.1	17.7	1	0	1014	-0.01	-0.6
06/01/2021 02:00	0.3	0.1	17.6	1	0	1014	-0.02	-1.6
06/01/2021 03:00	0.2	0.1	17.5	1	0	1014	-0.02	-1.9
06/01/2021 04:00	0.4	0.1	17.5	1	0	1013	-0.03	-0.8
06/01/2021 05:00	0.4	0.1	17.5	1	0	1013	-0.01	-0.3
06/01/2021 06:00	0.3	0.1	17.6	1	0	1012	-0.01	-0.5
06/01/2021 07:00	0.3	0.1	17.5	1	0	1012	-0.01	-1.0
06/01/2021 08:00	0.3	0.1	17.5	1	0	1013	-0.02	-1.6
06/01/2021 09:00	0.4	0.1	17.4	1	0	1013	-0.02	-1.8
06/01/2021 10:00	0.4	0.1	17.5	1	0	1013	-0.01	-0.8
06/01/2021 11:00	0.4	0.1	17.6	1	0	1013	-0.02	0.0
06/01/2021 12:00	0.4	0.1	17.7	1	0	1012	-0.02	2.9
06/01/2021 13:00	0.5	0.1	18.0	1	0	1011	-0.01	4.5
06/01/2021 14:00	0.6	0.1	18.5	0	0	1011	-0.01	3.5
06/01/2021 15:00	0.6	0.1	18.6	0	0	1011	-0.01	2.9
06/01/2021 16:00	0.5	0.1	18.5	0	0	1011	-0.01	1.8
06/01/2021 17:00	0.4	0.1	18.3	1	0	1011	-0.02	0.1
06/01/2021 18:00	0.3	0.1	18.0	1	0	1011	-0.01	-1.4
06/01/2021 19:00	0.4	0.1	17.8	1	0	1011	-0.02	-2.3
06/01/2021 20:00	0.3	0.1	17.6	1	0	1011	-0.01	-2.9
06/01/2021 21:00	0.4	0.1	17.5	1	0	1011	-0.02	-3.4
06/01/2021 22:00	0.3	0.1	17.4	1	0	1010	-0.01	-3.9
06/01/2021 23:00	0.4	0.1	17.3	1	0	1010	-0.02	-4.2
07/01/2021 00:00	0.4	0.1	17.2	1	0	1010	-0.02	-4.5
07/01/2021 01:00	0.4	0.1	17.1	1	0	1010	-0.02	-4.7
07/01/2021 02:00	0.4	0.1	17.1	1	0	1009	-0.02	-5.0
07/01/2021 03:00	0.3	0.1	17.0	1	0	1009	-0.01	-5.0
07/01/2021 04:00	0.4	0.1	17.0	1	0	1009	-0.02	-3.6
07/01/2021 05:00	0.4	0.1	17.3	1	0	1008	-0.02	-2.6
07/01/2021 06:00	0.4	0.1	17.4	1	0	1008	-0.01	-2.0
07/01/2021 07:00	0.4	0.1	17.5	1	0	1008	-0.02	-1.6
07/01/2021 08:00	0.3	0.1	17.6	1	0	1008	-0.01	-1.3
07/01/2021 09:00	0.4	0.1	17.7	1	0	1008	-0.02	-1.0
07/01/2021 10:00	0.4	0.1	17.8	1	0	1008	-0.02	-0.6
07/01/2021 11:00	0.4	0.1	17.9	1	0	1008	-0.02	0.1
07/01/2021 12:00	0.4	0.1	18.0	1	0	1007	-0.01	0.7
07/01/2021 13:00	0.4	0.1	18.0	1	0	1007	-0.01	1.2
07/01/2021 14:00	0.4	0.1	18.1	1	0	1006	-0.01	1.5
07/01/2021 15:00	0.4	0.1	18.2	1	0	1006	-0.01	1.0
07/01/2021 16:00	0.4	0.1	18.2	1	0	1006	-0.01	0.8
07/01/2021 17:00	0.4	0.1	18.1	1	0	1006	-0.01	0.5
07/01/2021 18:00	0.3	0.1	18.1	1	0	1006	-0.01	0.5
07/01/2021 19:00	0.5	0.1	18.1	1	0	1006	-0.01	0.5
07/01/2021 20:00	0.5	0.1	18.1	1	0	1006	-0.01	0.5
07/01/2021 21:00	0.5	0.1	18.1	1	0	1006	-0.02	0.5
07/01/2021 22:00	0.4	0.1	18.1	1	0	1006	-0.02	0.6
07/01/2021 23:00	0.3	0.1	18.1	1	0	1006	-0.01	0.4
08/01/2021 00:00	0.4	0.1	18.1	1	0	1006	-0.01	0.4
08/01/2021 01:00	0.4	0.1	18.1	1	0	1006	-0.02	0.4
08/01/2021 02:00	0.4	0.1	18.1	1	0	1005	-0.02	0.5
08/01/2021 03:00	0.4	0.1	18.1	1	0	1006	-0.02	0.5
08/01/2021 04:00	0.4	0.1	18.1	1	0	1006	-0.01	0.6
08/01/2021 05:00	0.4	0.1	18.1	1	0	1005	-0.02	0.5
08/01/2021 06:00	0.4	0.1	18.1	1	0	1006	-0.02	0.6
08/01/2021 07:00	0.5	0.1	18.1	1	0	1006	-0.01	0.7
08/01/2021 08:00	0.5	0.1	18.1	1	0	1006	-0.01	0.6
08/01/2021 09:00	0.5	0.1	18.1	1	0	1007	-0.02	0.7
08/01/2021 10:00	0.5	0.1	18.2	1	0	1007	-0.01	1.3
08/01/2021 11:00	0.5	0.1	18.2	1	0	1008	-0.01	1.8
08/01/2021 12:00	0.5	0.1	18.3	1	0	1008	-0.01	2.4
08/01/2021 13:00	0.5	0.1	18.4	1	0	1008	-0.01	2.9
08/01/2021 14:00	0.6	0.1	18.5	0	0	1008	-0.01	3.0
08/01/2021 15:00	0.5	0.1	18.6	0	0	1009	-0.01	2.9
08/01/2021 16:00	0.4	0.1	18.5	0	0	1010	-0.01	2.4
08/01/2021 17:00	0.5	0.1	18.5	0	0	1010	-0.01	2.1
08/01/2021 18:00	0.4	0.1	18.4	1	0	1011	-0.01	1.5
08/01/2021 19:00	0.5	0.1	18.3	1	0	1011	-0.02	1.1
08/01/2021 20:00	0.5	0.1	18.2	1	0	1012	-0.01	1.2
08/01/2021 21:00	0.5	0.1	18.2	1	0	1012	-0.01	1.3
08/01/2021 22:00	0.4	0.1	18.2	1	0	1013	-0.01	0.9
08/01/2021 23:00	0.4	0.1	18.2	1	0	1013	-0.02	0.9
09/01/2021 00:00	0.4	0.1	18.1	1	0	1013	-0.01	0.6
09/01/2021 01:00	0.4	0.1	18.1	1	0	1014	-0.01	0.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Atmospheric Pressure mbar	Flow Ltr/hr	Temperature °C
09/01/2021 02:00	0.4	0.1	18.1	1	0	1014	-0.01	0.6
09/01/2021 03:00	0.5	0.1	18.1	1	0	1014	-0.01	0.6
09/01/2021 04:00	0.5	0.1	18.1	1	0	1014	-0.02	-0.1
09/01/2021 05:00	0.4	0.1	18.0	1	0	1015	-0.02	-1.2
09/01/2021 06:00	0.4	0.1	18.0	1	0	1015	-0.02	-1.3
09/01/2021 07:00	0.4	0.1	17.9	1	0	1015	-0.02	-1.6
09/01/2021 08:00	0.4	0.1	17.9	1	0	1015	-0.01	-1.7
09/01/2021 09:00	0.4	0.1	17.8	1	0	1016	-0.03	-2.3
09/01/2021 10:00	0.5	0.1	17.9	1	0	1016	-0.02	-0.8
09/01/2021 11:00	0.5	0.1	18.0	1	0	1016	-0.02	0.2
09/01/2021 12:00	0.5	0.1	18.1	1	0	1016	-0.02	1.2
09/01/2021 13:00	0.5	0.1	18.3	1	0	1016	-0.01	2.3
09/01/2021 14:00	0.6	0.1	18.5	1	0	1015	-0.01	2.2
09/01/2021 15:00	0.6	0.1	18.7	0	0	1015	-0.01	2.3
09/01/2021 16:00	0.7	0.1	18.7	1	0	1015	-0.01	1.1
09/01/2021 17:00	0.6	0.1	18.6	1	0	1015	-0.02	1.1
09/01/2021 18:00	0.6	0.1	18.5	1	0	1015	-0.02	0.8
09/01/2021 19:00	0.6	0.1	18.4	1	0	1015	-0.02	0.7
09/01/2021 20:00	0.5	0.1	18.4	1	0	1015	-0.01	-0.2
09/01/2021 21:00	0.5	0.1	18.3	1	0	1015	-0.01	-0.8
09/01/2021 22:00	0.4	0.1	18.2	1	0	1015	-0.01	-0.6
09/01/2021 23:00	0.6	0.1	18.2	1	0	1015	-0.01	-0.7
10/01/2021 00:00	0.5	0.1	18.2	1	0	1015	-0.01	-0.1
10/01/2021 01:00	0.5	0.1	18.2	1	0	1015	-0.02	0.2
10/01/2021 02:00	0.5	0.1	18.2	1	0	1014	-0.01	0.4
10/01/2021 03:00	0.5	0.1	18.2	1	0	1015	-0.02	0.6
10/01/2021 04:00	0.5	0.1	18.3	1	0	1014	-0.01	0.7
10/01/2021 05:00	0.5	0.1	18.3	1	0	1014	-0.01	0.9
10/01/2021 06:00	0.5	0.1	18.3	1	0	1014	-0.01	1.2
10/01/2021 07:00	0.6	0.1	18.3	1	0	1014	-0.01	1.1
10/01/2021 08:00	0.6	0.1	18.4	1	0	1014	-0.02	1.3
10/01/2021 09:00	0.5	0.1	18.4	1	0	1014	-0.01	1.4
10/01/2021 10:00	0.6	0.1	18.4	1	0	1014	-0.01	1.7
10/01/2021 11:00	0.6	0.1	18.5	1	0	1014	-0.01	2.3
10/01/2021 12:00	0.7	0.1	18.5	1	0	1014	-0.01	2.7
10/01/2021 13:00	0.7	0.1	18.6	1	0	1013	-0.01	3.0
10/01/2021 14:00	0.7	0.1	18.7	0	0	1012	-0.01	3.5
10/01/2021 15:00	0.7	0.1	18.8	0	0	1012	-0.01	3.7
10/01/2021 16:00	0.8	0.1	18.8	0	0	1012	-0.01	3.8
10/01/2021 17:00	0.8	0.1	18.9	0	0	1011	-0.01	3.8
10/01/2021 18:00	0.8	0.1	18.9	0	0	1011	-0.01	4.0
10/01/2021 19:00	0.9	0.1	18.9	0	0	1011	-0.01	3.9
10/01/2021 20:00	0.9	0.1	18.9	0	0	1010	-0.01	3.9
10/01/2021 21:00	0.8	0.1	18.9	0	0	1010	-0.01	3.8
10/01/2021 22:00	0.7	0.1	18.9	0	0	1010	-0.02	3.8
10/01/2021 23:00	0.8	0.1	18.9	0	0	1010	-0.01	3.9
11/01/2021 00:00	0.7	0.1	18.9	0	0	1009	-0.01	3.9
11/01/2021 01:00	0.9	0.1	18.9	0	0	1008	-0.01	3.8
11/01/2021 02:00	0.6	0.1	18.9	0	0	1008	-0.01	3.9
11/01/2021 03:00	0.8	0.1	18.9	0	0	1007	-0.02	3.9
11/01/2021 04:00	0.8	0.1	18.9	0	0	1007	-0.01	3.9
11/01/2021 05:00	0.9	0.1	18.9	0	0	1006	-0.02	4.1
11/01/2021 06:00	0.8	0.1	19.0	0	0	1005	-0.01	4.2
11/01/2021 07:00	0.9	0.1	19.0	0	1	1005	-0.01	4.3
11/01/2021 08:00	0.9	0.1	19.0	0	1	1004	-0.01	4.4
11/01/2021 09:00	1.1	0.1	19.0	0	1	1004	-0.01	4.3
11/01/2021 10:00	1.2	0.1	19.0	0	0	1004	-0.02	4.5
11/01/2021 11:00	1.1	0.1	19.0	0	0	1003	-0.01	4.7
11/01/2021 12:00	1.2	0.1	19.1	0	1	1003	-0.01	5.0
11/01/2021 13:00	1.3	0.1	19.1	0	1	1002	-0.01	5.3
11/01/2021 14:00	1.4	0.1	19.1	0	1	1001	-0.01	5.6
11/01/2021 15:00	1.5	0.1	19.2	0	1	1000	-0.01	6.0
11/01/2021 16:00	1.9	0.1	19.2	0	1	999	-0.01	6.3
11/01/2021 17:00	1.8	0.1	19.3	0	1	999	-0.01	6.5
11/01/2021 18:00	2.3	0.1	19.3	0	1	998	-0.02	6.6
11/01/2021 19:00	2.3	0.1	19.3	0	1	998	-0.01	6.8
11/01/2021 20:00	2.8	0.1	19.0	0	1	997	-0.01	6.9
11/01/2021 21:00	3.0	0.1	19.1	0	1	997	-0.01	6.8
11/01/2021 22:00	2.8	0.1	19.0	0	1	997	-0.01	6.7
11/01/2021 23:00	3.0	0.1	19.0	0	1	996	-0.01	6.5
12/01/2021 00:00	3.1	0.1	19.0	0	1	996	-0.01	6.4
12/01/2021 01:00	3.1	0.1	19.0	0	1	996	-0.01	6.3
12/01/2021 02:00	3.0	0.1	18.9	0	1	996	-0.01	6.3
12/01/2021 03:00	3.4	0.1	18.9	0	1	997	-0.02	6.2
12/01/2021 04:00	3.2	0.1	18.9	0	1	997	-0.01	6.2
12/01/2021 05:00	3.6	0.1	18.8	0	1	998	-0.01	5.8
12/01/2021 06:00	3.4	0.1	18.6	0	1	998	-0.01	5.5
12/01/2021 07:00	3.0	0.1	18.5	0	1	1000	-0.01	4.8
12/01/2021 08:00	2.6	0.1	18.3	0	1	1001	-0.01	4.0
12/01/2021 09:00	2.2	0.1	18.1	0	1	1002	-0.01	2.4
12/01/2021 10:00	1.8	0.1	18.0	0	0	1003	-0.02	1.6
12/01/2021 11:00	2.4	0.1	18.1	0	1	1004	-0.01	3.3

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463		
Location:	School Street, Radcliffe		
Borehole ref:	WS108		
Instrument ID:	GC #00219/01/12 FD #030700011	Days of monitoring:	18
Start Date:	21/12/2020 12:41	Monitoring Frequency (mins):	60
End Date:	12/01/2021 11:16	Total samples taken:	448

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Borehole Pressure	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	15.5	0	0	977	958	-0.38	3.6
Maximum	1.2	0.7	20.7	0	9	1022	1021	0.50	11.7
Range	1.2	0.7	5.2	0	9	45	63	0.88	8.1

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
21/12/2020 12:41	0.0	0.0	20.7	0	1	988	988	0.24	11.7
21/12/2020 13:41	0.4	0.0	20.0	0	5	987	987	-0.24	9.1
21/12/2020 14:41	0.8	0.0	19.5	0	6	987	987	-0.24	8.3
21/12/2020 15:41	0.8	0.0	19.1	0	7	987	987	-0.24	8.1
21/12/2020 16:41	0.4	0.0	18.9	0	8	987	987	-0.24	8.1
21/12/2020 17:41	0.4	0.0	19.0	0	7	989	987	0.24	8.0
21/12/2020 18:41	0.4	0.0	19.0	0	7	990	987	-0.24	8.0
21/12/2020 19:41	0.4	0.0	19.0	0	6	991	987	0.24	8.0
21/12/2020 20:41	0.4	0.0	19.0	0	7	992	988	0.24	8.0
21/12/2020 21:41	0.4	0.0	19.0	0	6	993	988	0.24	8.0
21/12/2020 22:41	0.4	0.0	19.0	0	6	994	989	-0.24	8.1
21/12/2020 23:41	0.4	0.0	19.1	0	6	996	990	-0.24	8.1
22/12/2020 00:41	0.4	0.0	19.2	0	6	998	991	-0.24	8.1
22/12/2020 01:41	0.4	0.0	19.2	0	6	1000	992	0.00	8.1
22/12/2020 02:41	0.4	0.0	19.2	0	5	1002	994	0.24	8.1
22/12/2020 03:41	0.4	0.0	19.3	0	5	1004	995	0.50	8.1
22/12/2020 04:41	0.4	0.0	19.2	0	6	1005	996	0.24	8.1
22/12/2020 05:41	0.4	0.0	19.2	0	5	1005	997	0.24	8.1
22/12/2020 06:41	0.4	0.0	19.2	0	5	1007	998	0.24	8.0
22/12/2020 07:41	0.4	0.0	19.2	0	5	1008	999	0.24	7.9
22/12/2020 08:41	0.4	0.0	19.1	0	5	1008	1000	0.00	7.9
22/12/2020 09:41	0.4	0.0	19.1	0	4	1008	1000	0.00	7.8
22/12/2020 10:41	0.4	0.0	19.1	0	5	1009	1001	0.00	7.8
22/12/2020 11:41	0.4	0.0	19.0	0	5	1009	1001	-0.24	7.8
22/12/2020 12:41	0.4	0.0	19.0	0	5	1008	1001	0.00	7.8
22/12/2020 13:41	0.4	0.0	19.0	0	5	1008	1001	0.00	7.8
22/12/2020 14:41	0.4	0.0	19.0	0	5	1008	1001	0.00	7.8
22/12/2020 15:41	0.4	0.0	19.0	0	5	1008	1001	0.24	7.8
22/12/2020 16:41	0.4	0.0	18.9	0	5	1007	1001	0.00	7.8
22/12/2020 17:41	0.4	0.0	18.9	0	5	1007	1001	0.00	7.8
22/12/2020 18:41	0.4	0.0	18.9	0	5	1006	1000	0.24	7.7
22/12/2020 19:41	0.4	0.0	18.9	0	5	1006	1000	0.00	7.7
22/12/2020 20:41	0.4	0.0	18.9	0	4	1006	1000	0.24	7.7
22/12/2020 21:41	0.4	0.0	18.8	0	4	1005	1000	0.00	7.6
22/12/2020 22:41	0.4	0.0	18.8	0	5	1005	999	0.24	7.6
22/12/2020 23:41	0.4	0.0	18.7	0	5	1004	999	0.00	7.6
23/12/2020 00:41	0.4	0.0	18.7	0	5	1004	998	0.24	7.6
23/12/2020 01:41	0.4	0.0	18.7	0	5	1003	997	0.00	7.6
23/12/2020 02:41	0.4	0.0	18.7	0	5	1003	997	0.24	7.6
23/12/2020 03:41	0.4	0.0	18.6	0	5	1002	997	0.24	7.5
23/12/2020 04:41	0.4	0.0	18.6	0	5	1001	996	0.00	7.5
23/12/2020 05:41	0.4	0.0	18.6	0	5	1001	996	0.00	7.5
23/12/2020 06:41	0.4	0.0	18.6	0	5	1001	995	0.24	7.5
23/12/2020 07:41	0.4	0.0	18.6	0	5	1000	995	0.00	7.5
23/12/2020 08:41	0.4	0.0	18.6	0	5	1001	995	0.00	7.4
23/12/2020 09:41	0.4	0.0	18.6	0	5	1000	994	0.00	7.4
23/12/2020 10:41	0.4	0.0	18.5	0	5	1000	994	0.00	7.4
23/12/2020 11:41	0.4	0.0	18.5	0	5	1000	994	0.00	7.4
23/12/2020 12:41	0.4	0.0	18.5	0	5	1000	994	0.00	7.4
23/12/2020 13:41	0.4	0.0	18.5	0	5	1000	994	0.24	7.4
23/12/2020 14:41	0.4	0.0	18.5	0	5	1000	994	0.00	7.4
23/12/2020 15:41	0.4	0.0	18.4	0	6	1000	994	0.00	7.4
23/12/2020 16:41	0.4	0.0	18.5	0	5	1001	996	0.00	7.4
23/12/2020 17:41	0.8	0.0	18.4	0	5	1002	997	0.00	7.4
23/12/2020 18:41	0.4	0.0	18.4	0	5	1003	998	0.00	7.4
23/12/2020 19:41	0.8	0.0	18.4	0	6	1004	1000	0.00	7.4
23/12/2020 20:41	0.8	0.0	18.4	0	5	1005	1001	0.00	7.4
23/12/2020 21:41	0.4	0.0	18.3	0	6	1006	1002	0.00	7.4
23/12/2020 22:41	0.8	0.0	18.3	0	5	1007	1003	0.00	7.4
23/12/2020 23:41	0.8	0.0	17.3	0	9	1008	1004	0.24	7.4
24/12/2020 00:41	0.8	0.0	17.2	0	8	1009	1005	0.00	7.4
24/12/2020 01:41	0.8	0.0	17.2	0	9	1010	1006	0.00	7.4
24/12/2020 02:41	0.8	0.0	17.2	0	8	1011	1007	0.00	7.4
24/12/2020 03:41	0.8	0.0	17.2	0	7	1011	1008	0.24	7.3
24/12/2020 04:41	0.8	0.0	17.2	0	9	1012	1009	0.00	7.3
24/12/2020 05:41	0.8	0.0	17.2	0	8	1012	1009	0.24	7.3
24/12/2020 06:41	0.8	0.0	17.2	0	8	1012	1010	-0.24	7.2
24/12/2020 07:41	0.8	0.0	17.2	0	8	1013	1011	0.00	7.1
24/12/2020 08:41	0.8	0.0	17.2	0	8	1014	1012	0.00	7.1
24/12/2020 09:41	0.8	0.0	17.2	0	8	1015	1013	0.24	7.0
24/12/2020 10:41	0.8	0.0	17.2	0	7	1016	1014	0.00	6.9
24/12/2020 11:41	0.8	0.0	17.1	0	8	1016	1014	0.24	6.9
24/12/2020 12:41	0.8	0.0	17.1	0	8	1017	1015	0.00	6.9
24/12/2020 13:41	0.8	0.0	17.1	0	7	1017	1016	-0.24	6.9
24/12/2020 14:41	0.8	0.0	17.1	0	7	1018	1016	0.00	6.9
24/12/2020 15:41	0.8	0.0	17.1	0	8	1019	1017	0.24	6.9
24/12/2020 16:41	0.8	0.0	17.1	0	8	1019	1017	0.00	6.9
24/12/2020 17:41	0.8	0.0	17.1	0	8	1020	1019	0.24	6.9
24/12/2020 18:41	0.8	0.0	17.0	0	8	1020	1019	0.24	6.8
24/12/2020 19:41	0.8	0.0	17.0	0	7	1021	1020	0.24	6.8
24/12/2020 20:41	0.8	0.0	17.0	0	8	1021	1020	0.00	6.7
24/12/2020 21:41	1.2	0.0	17.0	0	8	1021	1021	0.00	6.6
24/12/2020 22:41	0.8	0.0	16.9	0	8	1021	1020	0.24	6.6
24/12/2020 23:41	0.8	0.0	16.9	0	7	1021	1020	0.00	6.6
25/12/2020 00:41	1.2	0.0	16.9	0	8	1021	1021	0.00	6.5
25/12/2020 01:41	1.2	0.0	16.9	0	8	1022	1021	0.00	6.4
25/12/2020 02:41	1.2	0.0	16.7	0	8	1021	1021	0.24	6.4
25/12/2020 03:41	0.8	0.0	17.2	0	6	1021	1021	0.00	6.3
25/12/2020 04:41	0.8	0.0	17.1	0	6	1021	1021	0.00	6.3
25/12/2020 05:41	0.8	0.0	17.1	0	6	1021	1021	0.00	6.2
25/12/2020 06:41	0.8	0.0	17.5	0	4	1021	1021	0.00	6.1
25/12/2020 07:41	0.4	0.0	18.2	0	3	1021	1021	0.00	6.1
25/12/2020 08:41	0.4	0.0	18.4	0	2	1021	1021	0.24	6.1
25/12/2020 09:41	0.4	0.0	18.6	0	2	1021	1021	0.00	6.0
25/12/2020 10:41	0.4	0.0	18.6	0	2	1021	1021	0.00	5.9
25/12/2020 11:41	0.4	0.0	18.7	0	2	1021	1020	0.00	5.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
25/12/2020 12:41	0.4	0.0	18.6	0	3	1020	1020	0.00	5.9
25/12/2020 13:41	0.4	0.0	18.7	0	2	1020	1019	0.00	5.9
25/12/2020 14:41	0.4	0.0	18.7	0	2	1019	1019	0.00	5.9
25/12/2020 15:41	0.4	0.0	18.7	0	1	1018	1018	0.00	5.9
25/12/2020 16:41	0.4	0.0	18.7	0	2	1017	1017	0.00	5.9
25/12/2020 17:41	0.4	0.0	18.7	0	2	1016	1016	0.24	5.9
25/12/2020 18:41	0.4	0.0	18.7	0	2	1016	1015	0.24	5.8
25/12/2020 19:41	0.4	0.0	18.7	0	2	1015	1015	0.24	5.8
25/12/2020 20:41	0.4	0.0	18.7	0	2	1015	1014	0.00	5.8
25/12/2020 21:41	0.4	0.0	18.7	0	2	1014	1013	0.00	5.8
25/12/2020 22:41	0.4	0.0	18.7	0	2	1013	1013	0.24	5.8
25/12/2020 23:41	0.4	0.0	18.7	0	2	1012	1012	0.00	5.8
26/12/2020 00:41	0.4	0.0	18.7	0	2	1011	1011	0.24	5.8
26/12/2020 01:41	0.4	0.0	18.7	0	1	1010	1010	0.00	5.8
26/12/2020 02:41	0.4	0.0	18.7	0	2	1009	1009	0.24	5.8
26/12/2020 03:41	0.4	0.0	18.7	0	2	1008	1008	0.00	5.8
26/12/2020 04:41	0.4	0.0	18.7	0	2	1007	1007	0.00	5.8
26/12/2020 05:41	0.4	0.0	18.7	0	1	1006	1006	0.24	5.8
26/12/2020 06:41	0.4	0.0	18.7	0	2	1005	1005	0.24	5.8
26/12/2020 07:41	0.4	0.0	18.8	0	2	1005	1004	0.24	5.8
26/12/2020 08:41	0.4	0.0	18.7	0	2	1004	1004	0.00	5.8
26/12/2020 09:41	0.4	0.0	18.7	0	2	1003	1002	0.24	5.8
26/12/2020 10:41	0.4	0.0	18.7	0	2	1001	1001	0.00	5.9
26/12/2020 11:41	0.4	0.0	18.7	0	2	1000	999	0.00	5.9
26/12/2020 12:41	0.4	0.0	18.7	0	2	998	997	0.00	5.9
26/12/2020 13:41	0.4	0.0	18.6	0	2	996	995	0.24	5.9
26/12/2020 14:41	0.4	0.7	18.5	0	3	994	992	0.24	6.0
26/12/2020 15:41	0.4	0.7	18.5	0	3	992	990	0.00	6.0
26/12/2020 16:41	0.4	0.7	18.4	0	3	990	988	0.24	6.1
26/12/2020 17:41	0.4	0.7	18.4	0	4	988	986	0.00	6.1
26/12/2020 18:41	0.4	0.7	18.3	0	4	985	983	0.24	6.1
26/12/2020 19:41	0.4	0.7	18.3	0	4	983	980	0.00	6.1
26/12/2020 20:41	0.4	0.7	18.3	0	4	982	977	0.00	6.2
26/12/2020 21:41	0.4	0.7	18.4	0	5	982	974	0.00	6.2
26/12/2020 22:41	0.4	0.7	18.5	0	5	983	971	0.24	6.2
26/12/2020 23:41	0.8	0.7	18.7	0	5	986	968	0.00	6.3
27/12/2020 00:41	0.4	0.7	18.8	0	5	987	966	0.00	6.3
27/12/2020 01:41	0.8	0.7	18.8	0	5	988	963	0.00	6.3
27/12/2020 02:41	0.8	0.7	18.9	0	6	989	963	0.24	6.4
27/12/2020 03:41	0.8	0.7	18.9	0	6	990	962	0.00	6.4
27/12/2020 04:41	0.8	0.7	19.0	0	5	991	961	0.24	6.4
27/12/2020 05:41	0.8	0.7	19.0	0	5	991	962	0.24	6.4
27/12/2020 06:41	0.8	0.7	19.0	0	6	991	961	0.00	6.5
27/12/2020 07:41	0.8	0.7	18.9	0	6	991	962	0.00	6.5
27/12/2020 08:41	0.8	0.7	18.9	0	6	991	961	0.00	6.5
27/12/2020 09:41	0.8	0.7	18.8	0	5	990	961	0.00	6.4
27/12/2020 10:41	0.8	0.7	18.8	0	6	989	961	0.00	6.4
27/12/2020 11:41	0.8	0.7	18.7	0	5	988	960	0.00	6.4
27/12/2020 12:41	0.8	0.7	18.7	0	6	986	959	0.24	6.4
27/12/2020 13:41	0.8	0.7	18.6	0	6	985	959	0.00	6.4
27/12/2020 14:41	0.8	0.7	18.6	0	6	984	958	0.00	6.4
27/12/2020 15:41	0.8	0.7	18.5	0	6	982	958	0.24	6.4
27/12/2020 16:41	0.8	0.7	18.5	0	6	981	958	0.00	6.4
27/12/2020 17:41	0.8	0.7	18.4	0	6	980	958	0.00	6.4
27/12/2020 18:41	0.8	0.7	18.4	0	6	979	958	0.00	6.4
27/12/2020 20:31	0.8	0.7	18.1	0	6	977	958	0.24	6.4
31/12/2020 04:16	0.8	0.7	17.7	0	4	991	992	0.00	4.9
31/12/2020 05:16	0.8	0.7	15.5	0	4	991	991	0.00	5.0
31/12/2020 06:16	0.4	0.7	16.4	0	3	992	992	0.00	5.0
31/12/2020 07:16	0.4	0.7	17.6	0	1	992	992	0.00	5.0
31/12/2020 08:16	0.4	0.7	18.1	0	1	993	993	0.00	5.0
31/12/2020 09:16	0.0	0.0	18.3	0	1	993	993	0.00	4.9
31/12/2020 10:16	0.0	0.0	18.4	0	1	993	993	0.00	4.9
31/12/2020 11:16	0.0	0.0	18.5	0	1	994	993	0.00	4.9
31/12/2020 12:16	0.0	0.0	18.5	0	1	994	993	0.00	4.9
31/12/2020 13:16	0.0	0.0	18.6	0	0	993	993	0.00	4.9
31/12/2020 14:16	0.0	0.0	18.6	0	0	994	993	0.24	4.9
31/12/2020 15:16	0.0	0.0	18.6	0	1	994	994	0.24	5.0
31/12/2020 16:16	0.0	0.0	18.7	0	1	994	994	0.00	5.0
31/12/2020 17:16	0.0	0.0	18.7	0	1	995	995	0.00	5.0
31/12/2020 18:16	0.0	0.0	18.7	0	1	996	995	0.00	5.0
31/12/2020 19:16	0.0	0.0	18.7	0	1	996	996	0.00	5.0
31/12/2020 20:16	0.0	0.0	18.7	0	1	997	996	0.00	5.0
31/12/2020 21:16	0.0	0.0	18.8	0	1	997	997	0.00	5.0
31/12/2020 22:16	0.0	0.0	18.8	0	1	998	997	0.24	4.9
31/12/2020 23:16	0.0	0.0	18.8	0	1	998	997	0.24	4.9
01/01/2021 00:16	0.0	0.0	18.8	0	1	998	998	0.00	4.9
01/01/2021 01:16	0.0	0.0	18.8	0	1	998	998	0.00	4.9
01/01/2021 02:16	0.0	0.0	18.8	0	1	999	998	0.00	4.9
01/01/2021 03:16	0.0	0.0	18.8	0	1	999	999	0.00	4.9
01/01/2021 04:16	0.0	0.0	18.8	0	1	999	999	0.24	4.9
01/01/2021 05:16	0.0	0.0	18.8	0	1	999	999	0.00	4.9
01/01/2021 06:16	0.0	0.0	18.8	0	2	1000	999	0.24	4.9
01/01/2021 07:16	0.0	0.0	18.9	0	1	1000	1000	0.24	4.9
01/01/2021 08:16	0.0	0.0	18.9	0	2	1001	1000	0.00	4.8
01/01/2021 09:16	0.0	0.0	18.9	0	1	1001	1001	0.00	4.8
01/01/2021 10:16	0.0	0.0	18.9	0	1	1001	1001	0.00	4.8
01/01/2021 11:16	0.0	0.0	18.9	0	2	1002	1001	0.00	4.8
01/01/2021 12:16	0.0	0.7	18.8	0	1	1002	1001	0.24	4.8
01/01/2021 13:16	0.0	0.7	18.8	0	1	1001	1001	0.00	4.8
01/01/2021 14:16	0.0	0.7	18.8	0	1	1002	1001	0.00	4.8
01/01/2021 15:16	0.0	0.7	18.9	0	1	1002	1002	0.00	4.9
01/01/2021 16:16	0.0	0.7	18.9	0	1	1003	1002	0.00	4.9
01/01/2021 17:16	0.0	0.7	18.9	0	1	1003	1003	0.24	4.9
01/01/2021 18:16	0.0	0.7	18.9	0	2	1003	1003	0.00	4.9
01/01/2021 19:16	0.0	0.7	18.9	0	2	1004	1004	0.24	4.9
01/01/2021 20:16	0.0	0.7	18.9	0	1	1005	1004	0.00	4.9
01/01/2021 21:16	0.0	0.7	18.9	0	1	1005	1004	0.00	4.9
01/01/2021 22:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.8
01/01/2021 23:16	0.0	0.7	18.9	0	0	1005	1005	0.00	4.8
02/01/2021 00:16	0.0	0.7	18.9	0	2	1005	1005	0.24	4.8
02/01/2021 01:16	0.0	0.7	18.9	0	1	1006	1005	0.00	4.7
02/01/2021 02:16	0.0	0.7	18.9	0	1	1006	1005	0.00	4.7
02/01/2021 03:16	0.0	0.7	18.9	0	1	1006	1005	0.24	4.6
02/01/2021 04:16	0.0	0.7	18.9	0	2	1006	1005	0.00	4.6
02/01/2021 05:16	0.0	0.7	18.9	0	2	1005	1005	0.24	4.6
02/01/2021 06:16	0.0	0.7	18.9	0	1	1005	1005	0.00	4.5
02/01/2021 07:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.5
02/01/2021 08:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.4
02/01/2021 09:16	0.0	0.7	18.9	0	2	1005	1005	0.24	4.4
02/01/2021 10:16	0.0	0.7	18.9	0	2	1005	1005	0.24	4.4
02/01/2021 11:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.4
02/01/2021 12:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.4

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
02/01/2021 13:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.4
02/01/2021 14:16	0.0	0.7	18.9	0	1	1005	1005	0.00	4.4
02/01/2021 15:16	0.0	0.7	18.9	0	2	1005	1005	0.00	4.4
02/01/2021 16:16	0.0	0.7	18.9	0	2	1006	1005	0.00	4.4
02/01/2021 17:16	0.0	0.7	18.9	0	1	1006	1006	0.00	4.4
02/01/2021 18:16	0.0	0.7	18.9	0	2	1007	1006	0.00	4.4
02/01/2021 19:16	0.0	0.7	18.9	0	1	1007	1007	0.24	4.4
02/01/2021 20:16	0.0	0.7	18.9	0	1	1007	1007	0.24	4.4
02/01/2021 21:16	0.0	0.7	18.9	0	2	1007	1007	0.00	4.4
02/01/2021 22:16	0.0	0.7	18.9	0	1	1008	1007	0.00	4.4
02/01/2021 23:16	0.0	0.7	18.9	0	1	1008	1007	0.00	4.3
03/01/2021 00:16	0.0	0.7	18.9	0	1	1008	1008	0.00	4.3
03/01/2021 01:16	0.0	0.7	18.9	0	1	1008	1007	0.00	4.3
03/01/2021 02:16	0.0	0.7	18.8	0	2	1008	1008	0.00	4.3
03/01/2021 03:16	0.0	0.7	18.8	0	1	1008	1007	0.24	4.3
03/01/2021 04:16	0.0	0.7	18.8	0	2	1008	1007	0.24	4.3
03/01/2021 05:16	0.0	0.7	18.8	0	0	1008	1008	0.00	4.3
03/01/2021 06:16	0.0	0.7	18.8	0	1	1008	1008	0.00	4.3
03/01/2021 07:16	0.0	0.7	18.8	0	1	1008	1008	0.00	4.3
03/01/2021 08:16	0.0	0.7	18.9	0	2	1009	1008	0.00	4.3
03/01/2021 09:16	0.0	0.7	18.9	0	2	1009	1009	0.00	4.3
03/01/2021 10:16	0.0	0.7	18.9	0	1	1010	1009	0.00	4.2
03/01/2021 11:16	0.0	0.7	18.8	0	1	1010	1009	0.00	4.2
03/01/2021 12:16	0.0	0.7	18.8	0	2	1010	1009	0.24	4.3
03/01/2021 13:16	0.0	0.7	18.9	0	0	1010	1009	0.00	4.3
03/01/2021 14:16	0.0	0.7	18.8	0	1	1010	1010	0.24	4.3
03/01/2021 15:16	0.0	0.7	18.7	0	1	1010	1010	0.00	4.3
03/01/2021 16:16	0.0	0.7	18.5	0	1	1010	1010	0.00	4.4
03/01/2021 17:16	0.0	0.7	18.5	0	1	1011	1010	0.00	4.4
03/01/2021 18:16	0.0	0.7	18.4	0	1	1012	1011	0.24	4.4
03/01/2021 19:16	0.0	0.7	18.3	0	1	1012	1011	0.00	4.3
03/01/2021 20:16	0.0	0.7	18.2	0	0	1012	1012	0.00	4.3
03/01/2021 21:16	0.0	0.7	18.1	0	1	1012	1012	0.00	4.3
03/01/2021 22:16	0.0	0.7	18.0	0	1	1013	1012	0.00	4.3
03/01/2021 23:16	0.0	0.7	17.9	0	1	1013	1013	0.00	4.3
04/01/2021 00:16	0.0	0.7	17.8	0	1	1013	1013	0.00	4.3
04/01/2021 01:16	0.0	0.7	17.7	0	1	1013	1013	0.00	4.2
04/01/2021 02:16	0.0	0.7	17.6	0	1	1013	1013	0.24	4.2
04/01/2021 03:16	0.0	0.7	17.5	0	1	1013	1013	0.00	4.2
04/01/2021 04:16	0.0	0.7	17.5	0	1	1013	1013	0.24	4.2
04/01/2021 05:16	0.0	0.7	17.4	0	1	1013	1013	0.24	4.1
04/01/2021 06:16	0.0	0.7	17.4	0	2	1013	1013	0.00	4.1
04/01/2021 07:16	0.0	0.7	17.3	0	1	1014	1013	0.24	4.1
04/01/2021 08:16	0.0	0.7	17.3	0	2	1014	1014	0.00	4.1
04/01/2021 09:16	0.0	0.7	17.3	0	1	1014	1014	0.00	4.1
04/01/2021 10:16	0.0	0.7	17.3	0	1	1015	1014	0.00	4.1
04/01/2021 11:16	0.0	0.7	17.2	0	0	1015	1014	0.00	4.1
04/01/2021 12:16	0.0	0.7	17.1	0	2	1014	1014	0.24	4.1
04/01/2021 13:16	0.0	0.7	17.1	0	1	1014	1013	0.24	4.1
04/01/2021 14:16	0.0	0.7	17.1	0	1	1014	1013	0.00	4.1
04/01/2021 15:16	0.0	0.7	17.1	0	1	1014	1013	0.24	4.2
04/01/2021 16:16	0.0	0.7	17.1	0	1	1014	1013	0.00	4.2
04/01/2021 17:16	0.0	0.7	17.1	0	1	1014	1014	0.00	4.2
04/01/2021 18:16	0.0	0.7	17.1	0	2	1014	1014	0.00	4.2
04/01/2021 19:16	0.0	0.7	17.1	0	1	1014	1014	0.00	4.2
04/01/2021 20:16	0.0	0.7	17.0	0	1	1014	1014	0.00	4.2
04/01/2021 21:16	0.0	0.7	17.1	0	2	1014	1014	0.24	4.2
04/01/2021 22:16	0.0	0.7	17.0	0	2	1015	1014	0.00	4.2
04/01/2021 23:16	0.0	0.7	17.0	0	1	1014	1014	0.24	4.2
05/01/2021 00:16	0.0	0.7	17.0	0	1	1014	1014	0.24	4.2
05/01/2021 01:16	0.0	0.7	17.0	0	2	1014	1014	0.00	4.2
05/01/2021 02:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.2
05/01/2021 03:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.2
05/01/2021 04:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.2
05/01/2021 05:16	0.0	0.7	17.0	0	2	1014	1013	0.00	4.1
05/01/2021 06:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.1
05/01/2021 07:16	0.0	0.7	17.0	0	1	1014	1013	0.24	4.1
05/01/2021 08:16	0.0	0.7	17.0	0	1	1014	1014	0.24	4.1
05/01/2021 09:16	0.0	0.7	17.0	0	1	1014	1014	0.24	4.1
05/01/2021 10:16	0.0	0.7	17.0	0	1	1015	1014	0.00	4.1
05/01/2021 11:16	0.0	0.7	17.0	0	1	1015	1014	0.00	4.1
05/01/2021 12:16	0.0	0.7	16.9	0	1	1014	1014	0.00	4.1
05/01/2021 13:16	0.0	0.7	16.9	0	2	1014	1013	0.00	4.1
05/01/2021 14:16	0.0	0.7	17.1	0	0	1013	1013	0.00	4.2
05/01/2021 15:16	0.0	0.7	17.0	0	1	1013	1013	0.24	4.3
05/01/2021 16:16	0.0	0.7	17.0	0	2	1014	1013	0.00	4.3
05/01/2021 17:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.3
05/01/2021 18:16	0.0	0.7	17.0	0	2	1014	1013	0.00	4.3
05/01/2021 19:16	0.0	0.7	17.1	0	2	1014	1014	0.24	4.3
05/01/2021 20:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.3
05/01/2021 21:16	0.0	0.7	17.0	0	1	1014	1013	0.00	4.3
05/01/2021 22:16	0.0	0.7	17.0	0	1	1014	1013	0.24	4.3
05/01/2021 23:16	0.0	0.7	17.0	0	1	1013	1013	0.00	4.3
06/01/2021 00:16	0.0	0.7	17.0	0	1	1013	1013	0.00	4.3
06/01/2021 01:16	0.0	0.7	17.1	0	1	1013	1012	0.24	4.3
06/01/2021 02:16	0.0	0.7	17.0	0	1	1013	1012	0.00	4.2
06/01/2021 03:16	0.0	0.7	17.0	0	1	1012	1012	0.00	4.2
06/01/2021 04:16	0.0	0.7	17.0	0	1	1012	1012	0.00	4.1
06/01/2021 05:16	0.0	0.7	17.0	0	1	1012	1011	0.00	4.1
06/01/2021 06:16	0.0	0.7	17.0	0	1	1012	1011	0.00	4.1
06/01/2021 07:16	0.0	0.7	17.1	0	2	1012	1011	0.00	4.1
06/01/2021 08:16	0.0	0.7	17.1	0	1	1012	1011	0.00	4.1
06/01/2021 09:16	0.0	0.7	17.1	0	1	1012	1011	0.00	4.1
06/01/2021 10:16	0.0	0.7	17.1	0	1	1012	1012	0.24	4.1
06/01/2021 11:16	0.0	0.7	17.0	0	1	1012	1011	0.24	4.1
06/01/2021 12:16	0.0	0.7	17.0	0	1	1011	1010	0.00	4.1
06/01/2021 13:16	0.0	0.7	17.0	0	1	1010	1010	0.24	4.1
06/01/2021 14:16	0.0	0.7	17.0	0	1	1010	1010	0.00	4.1
06/01/2021 15:16	0.0	0.7	17.1	0	1	1010	1010	0.24	4.1
06/01/2021 16:16	0.0	0.7	17.1	0	2	1010	1010	0.00	4.1
06/01/2021 17:16	0.0	0.7	17.1	0	2	1010	1010	0.00	4.1
06/01/2021 18:16	0.0	0.7	17.1	0	0	1010	1010	0.00	4.1
06/01/2021 19:16	0.0	0.7	17.1	0	1	1010	1010	0.00	4.1
06/01/2021 20:16	0.0	0.7	17.1	0	1	1010	1010	0.00	4.1
06/01/2021 21:16	0.0	0.7	17.1	0	1	1010	1010	0.24	4.1
06/01/2021 22:16	0.0	0.7	17.1	0	2	1010	1009	0.00	4.0
06/01/2021 23:16	0.0	0.7	17.1	0	2	1010	1009	0.24	3.9
07/01/2021 00:16	0.0	0.7	17.1	0	1	1009	1009	0.00	3.9
07/01/2021 01:16	0.0	0.7	17.1	0	2	1008	1008	0.00	3.9
07/01/2021 02:16	0.0	0.7	17.1	0	2	1008	1008	0.24	3.8
07/01/2021 03:16	0.0	0.7	17.1	0	1	1008	1008	0.00	3.8
07/01/2021 04:16	0.0	0.7	17.1	0	1	1008	1007	0.00	3.8
07/01/2021 05:16	0.0	0.7	17.1	0	0	1008	1007	0.00	3.8
07/01/2021 06:16	0.0	0.7	17.1	0	2	1007	1007	0.24	3.8

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
07/01/2021 07:16	0.0	0.7	17.1	0	1	1007	1007	0.00	3.8
07/01/2021 08:16	0.0	0.7	17.1	0	1	1008	1007	0.24	3.7
07/01/2021 09:16	0.0	0.7	17.1	0	1	1008	1007	0.00	3.7
07/01/2021 10:16	0.0	0.7	17.1	0	1	1007	1007	0.24	3.7
07/01/2021 11:16	0.0	0.7	17.1	0	1	1007	1007	0.24	3.7
07/01/2021 12:16	0.0	0.7	17.1	0	0	1006	1006	0.00	3.7
07/01/2021 13:16	0.0	0.7	17.1	0	1	1006	1005	0.00	3.7
07/01/2021 14:16	0.0	0.7	17.1	0	1	1005	1005	0.00	3.7
07/01/2021 15:16	0.0	0.7	17.1	0	1	1005	1005	0.24	3.7
07/01/2021 16:16	0.0	0.7	17.2	0	1	1005	1004	0.00	3.7
07/01/2021 17:16	0.0	0.7	17.2	0	1	1005	1004	0.24	3.7
07/01/2021 18:16	0.0	0.7	17.2	0	1	1005	1004	0.24	3.7
07/01/2021 19:16	0.0	0.7	17.2	0	1	1005	1004	0.24	3.7
07/01/2021 20:16	0.0	0.7	17.2	0	1	1005	1004	0.00	3.7
07/01/2021 21:16	0.0	0.7	17.2	0	1	1005	1005	0.24	3.7
07/01/2021 22:16	0.0	0.7	17.2	0	1	1005	1004	0.24	3.7
07/01/2021 23:16	0.0	0.7	17.2	0	2	1005	1005	0.00	3.7
08/01/2021 00:16	0.0	0.7	17.2	0	1	1005	1004	0.00	3.7
08/01/2021 01:16	0.0	0.7	17.2	0	1	1005	1004	0.24	3.7
08/01/2021 02:16	0.0	0.7	17.2	0	1	1005	1004	0.00	3.7
08/01/2021 03:16	0.0	0.7	17.2	0	2	1005	1004	0.00	3.7
08/01/2021 04:16	0.0	0.7	17.1	0	1	1005	1004	0.00	3.7
08/01/2021 05:16	0.0	0.7	17.1	0	1	1005	1004	0.24	3.7
08/01/2021 06:16	0.0	0.7	17.1	0	1	1005	1005	0.00	3.7
08/01/2021 07:16	0.0	0.7	17.1	0	1	1005	1005	0.00	3.7
08/01/2021 08:16	0.0	0.7	17.1	0	1	1006	1006	0.00	3.6
08/01/2021 09:16	0.0	0.7	17.1	0	1	1007	1006	0.00	3.7
08/01/2021 10:16	0.0	0.7	17.1	0	2	1007	1007	0.24	3.7
08/01/2021 11:16	0.0	0.7	17.1	0	1	1007	1007	0.00	3.7
08/01/2021 12:16	0.0	0.7	17.1	0	1	1008	1007	0.00	3.7
08/01/2021 13:16	0.0	0.7	17.0	0	1	1008	1007	0.24	3.7
08/01/2021 14:16	0.0	0.7	17.1	0	1	1008	1008	0.00	3.7
08/01/2021 15:16	0.0	0.7	17.1	0	1	1009	1008	0.00	3.7
08/01/2021 16:16	0.0	0.7	17.1	0	2	1009	1009	0.00	3.8
08/01/2021 17:16	0.0	0.7	17.1	0	1	1010	1010	0.24	3.8
08/01/2021 18:16	0.0	0.7	17.0	0	1	1011	1010	0.00	3.8
08/01/2021 19:16	0.0	0.7	17.0	0	2	1011	1011	0.00	3.8
08/01/2021 20:16	0.0	0.7	17.0	0	1	1012	1011	0.00	3.8
08/01/2021 21:16	0.0	0.7	17.0	0	1	1012	1012	0.00	3.8
08/01/2021 22:16	0.0	0.7	16.9	0	2	1012	1012	0.24	3.8
08/01/2021 23:16	0.0	0.7	16.9	0	1	1013	1012	0.00	3.8
09/01/2021 00:16	0.0	0.7	16.9	0	1	1013	1012	0.00	3.8
09/01/2021 01:16	0.0	0.7	16.9	0	1	1013	1013	0.24	3.8
09/01/2021 02:16	0.0	0.7	16.9	0	1	1013	1013	0.00	3.8
09/01/2021 03:16	0.0	0.7	16.9	0	1	1014	1013	0.00	3.8
09/01/2021 04:16	0.0	0.7	16.8	0	1	1014	1014	0.00	3.8
09/01/2021 05:16	0.0	0.7	16.8	0	1	1014	1014	0.24	3.8
09/01/2021 06:16	0.0	0.7	16.8	0	1	1014	1014	0.00	3.7
09/01/2021 07:16	0.0	0.7	16.8	0	2	1015	1014	0.00	3.7
09/01/2021 08:16	0.0	0.7	16.8	0	1	1015	1014	0.24	3.7
09/01/2021 09:16	0.0	0.7	16.8	0	2	1015	1015	0.00	3.7
09/01/2021 10:16	0.0	0.7	16.8	0	1	1015	1015	0.00	3.6
09/01/2021 11:16	0.0	0.7	16.8	0	1	1015	1015	0.24	3.6
09/01/2021 12:16	0.0	0.7	16.8	0	1	1015	1014	0.24	3.6
09/01/2021 13:16	0.0	0.7	16.7	0	1	1015	1014	0.24	3.7
09/01/2021 14:16	0.0	0.7	16.7	0	2	1015	1014	0.00	3.7
09/01/2021 15:16	0.0	0.7	16.8	0	1	1014	1014	0.00	3.7
09/01/2021 16:16	0.0	0.7	16.7	0	1	1015	1014	0.00	3.8
09/01/2021 17:16	0.0	0.7	16.7	0	1	1014	1014	0.00	3.8
09/01/2021 18:16	0.0	0.7	16.7	0	1	1015	1014	0.24	3.8
09/01/2021 19:16	0.0	0.7	16.7	0	0	1015	1014	0.24	3.8
09/01/2021 20:16	0.0	0.7	16.7	0	1	1015	1014	0.00	3.8
09/01/2021 21:16	0.0	0.7	16.7	0	1	1015	1014	0.24	3.8
09/01/2021 22:16	0.0	0.7	16.7	0	1	1015	1014	0.00	3.8
09/01/2021 23:16	0.0	0.7	16.7	0	1	1015	1014	0.24	3.7
10/01/2021 00:16	0.0	0.7	16.7	0	2	1014	1014	0.00	3.7
10/01/2021 01:16	0.0	0.7	16.7	0	1	1014	1013	0.00	3.7
10/01/2021 02:16	0.0	0.7	16.7	0	1	1014	1014	0.00	3.7
10/01/2021 03:16	0.0	0.7	16.7	0	1	1014	1013	0.24	3.7
10/01/2021 04:16	0.0	0.7	16.7	0	1	1014	1013	0.24	3.7
10/01/2021 05:16	0.0	0.7	16.6	0	1	1013	1013	0.00	3.7
10/01/2021 06:16	0.0	0.7	16.7	0	1	1013	1013	0.24	3.7
10/01/2021 07:16	0.0	0.7	16.6	0	0	1013	1012	0.00	3.7
10/01/2021 08:16	0.0	0.7	16.7	0	1	1013	1013	0.00	3.7
10/01/2021 09:16	0.0	0.7	16.7	0	1	1013	1013	0.24	3.7
10/01/2021 10:16	0.0	0.7	16.7	0	0	1013	1013	0.00	3.8
10/01/2021 11:16	0.0	0.7	16.6	0	1	1013	1013	0.00	3.8
10/01/2021 12:16	0.0	0.7	16.6	0	1	1012	1012	0.00	3.8
10/01/2021 13:16	0.0	0.7	16.6	0	2	1012	1011	0.00	3.8
10/01/2021 14:16	0.0	0.7	16.6	0	1	1011	1011	0.00	3.8
10/01/2021 15:16	0.0	0.7	16.6	0	1	1011	1011	0.24	3.8
10/01/2021 16:16	0.0	0.7	16.6	0	2	1011	1010	0.00	3.8
10/01/2021 17:16	0.0	0.7	16.6	0	2	1010	1010	0.24	3.9
10/01/2021 18:16	0.0	0.7	16.6	0	1	1010	1010	0.00	3.9
10/01/2021 19:16	0.0	0.7	16.6	0	1	1010	1010	0.24	3.9
10/01/2021 20:16	0.0	0.7	16.6	0	1	1010	1009	0.24	3.9
10/01/2021 21:16	0.0	0.7	16.6	0	1	1010	1009	0.00	4.0
10/01/2021 22:16	0.0	0.7	16.6	0	2	1009	1009	0.00	4.0
10/01/2021 23:16	0.0	0.7	16.5	0	1	1008	1008	0.24	4.1
11/01/2021 00:16	0.0	0.7	16.5	0	1	1008	1007	0.00	4.1
11/01/2021 01:16	0.0	0.7	16.5	0	2	1007	1007	0.24	4.1
11/01/2021 02:16	0.0	0.7	16.5	0	0	1007	1006	0.24	4.1
11/01/2021 03:16	0.0	0.7	16.5	0	1	1006	1006	0.00	4.1
11/01/2021 04:16	0.0	0.7	16.5	0	1	1005	1005	0.00	4.2
11/01/2021 05:16	0.0	0.7	16.5	0	0	1005	1004	0.00	4.2
11/01/2021 06:16	0.0	0.7	16.5	0	1	1004	1004	0.00	4.2
11/01/2021 07:16	0.0	0.7	16.5	0	1	1004	1003	0.00	4.3
11/01/2021 08:16	0.0	0.7	16.5	0	2	1003	1003	0.24	4.3
11/01/2021 09:16	0.0	0.7	16.5	0	1	1003	1003	0.00	4.3
11/01/2021 10:16	0.0	0.7	16.5	0	0	1003	1002	0.00	4.3
11/01/2021 11:16	0.0	0.7	16.5	0	1	1002	1002	0.24	4.3
11/01/2021 12:16	0.0	0.7	16.5	0	1	1001	1001	0.00	4.4
11/01/2021 13:16	0.0	0.7	16.5	0	1	1000	1000	0.00	4.4
11/01/2021 14:16	0.0	0.7	16.5	0	2	999	999	0.24	4.4
11/01/2021 15:16	0.0	0.7	16.4	0	2	998	998	0.00	4.4
11/01/2021 16:16	0.0	0.7	16.4	0	1	998	998	0.00	4.5
11/01/2021 17:16	0.0	0.7	16.4	0	1	998	997	0.00	4.5
11/01/2021 18:16	0.0	0.7	16.4	0	1	997	997	0.00	4.6
11/01/2021 19:16	0.0	0.7	16.4	0	1	997	996	0.00	4.6
11/01/2021 20:16	0.0	0.7	16.4	0	1	997	996	0.24	4.6
11/01/2021 21:16	0.0	0.7	16.4	0	1	996	996	0.00	4.7
11/01/2021 22:16	0.0	0.7	16.4	0	2	996	995	0.00	4.8
11/01/2021 23:16	0.0	0.7	16.4	0	1	995	995	0.00	4.8
12/01/2021 00:16	0.0	0.7	16.4	0	1	995	995	-0.24	4.8

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
12/01/2021 01:16	0.0	0.7	16.4	0	2	995	995	-0.24	4.8
12/01/2021 02:16	0.0	0.7	16.8	0	1	1001	995	0.24	4.9
12/01/2021 03:16	0.0	0.7	16.9	0	1	1005	996	-0.24	4.9
12/01/2021 04:16	0.0	0.7	17.1	0	2	1008	997	-0.24	4.9
12/01/2021 05:16	0.0	0.7	17.2	0	2	1012	997	-0.38	5.0
12/01/2021 06:16	0.0	0.7	17.3	0	2	1015	998	-0.24	5.1
12/01/2021 07:16	0.0	0.7	17.4	0	2	1017	999	-0.24	5.1
12/01/2021 08:16	0.0	0.7	17.4	0	2	1019	1001	-0.38	5.1
12/01/2021 09:16	0.0	0.7	17.4	0	2	1020	1002	-0.24	5.1
12/01/2021 10:16	0.0	0.7	17.4	0	2	1021	1003	-0.24	5.1
12/01/2021 11:16	0.0	0.7	17.3	0	2	1021	1004	-0.24	5.1

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS109
Instrument ID:	GC #00126/03/10 FD #030700009
Start Date:	21/12/2020 13:48
End Date:	12/01/2021 10:48

Days of monitoring:	22
Monitoring Frequency (mins):	60
Total samples taken:	526

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Borehole Pressure	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	10.7	0	0	956	956	NM	3.4
Maximum	0.0	3.8	18.3	1	20	1020	1021	NM	9.9
Range	0.0	3.8	7.6	1	20	64	65	N/A	6.5

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
21/12/2020 13:48	0.0	0.0	18.3	0	1	986	986	NM	9.9
21/12/2020 14:48	0.0	0.6	17.9	0	1	986	986	NM	8.8
21/12/2020 15:48	0.0	0.9	17.5	0	2	986	986	NM	8.4
21/12/2020 16:48	0.0	1.2	17.3	0	2	986	986	NM	8.3
21/12/2020 17:48	0.0	1.4	17.1	0	2	986	986	NM	8.2
21/12/2020 18:48	0.0	1.5	17.0	0	2	986	986	NM	8.1
21/12/2020 19:48	0.0	1.7	16.8	0	3	987	987	NM	8.1
21/12/2020 20:48	0.0	1.7	16.7	0	3	987	987	NM	8.2
21/12/2020 21:48	0.0	1.9	16.6	0	4	987	988	NM	8.2
21/12/2020 22:48	0.0	1.9	16.4	0	4	988	988	NM	8.2
21/12/2020 23:48	0.0	2.0	16.3	0	6	989	989	NM	8.2
22/12/2020 00:48	0.0	2.0	16.3	0	7	990	991	NM	8.3
22/12/2020 01:48	0.0	2.0	16.2	0	9	992	992	NM	8.3
22/12/2020 02:48	0.0	2.0	16.0	0	11	993	993	NM	8.3
22/12/2020 03:48	0.0	2.0	15.9	1	13	994	995	NM	8.3
22/12/2020 04:48	0.0	2.0	15.8	1	15	995	996	NM	8.2
22/12/2020 05:48	0.0	2.1	15.8	1	16	996	996	NM	8.1
22/12/2020 06:48	0.0	2.1	15.7	1	18	997	998	NM	8.0
22/12/2020 07:48	0.0	2.2	15.7	1	19	998	998	NM	7.9
22/12/2020 08:48	0.0	2.3	15.6	1	19	999	999	NM	7.8
22/12/2020 09:48	0.0	2.3	15.6	1	20	999	1000	NM	7.8
22/12/2020 10:48	0.0	2.3	15.6	1	20	1000	1000	NM	7.8
22/12/2020 11:48	0.0	2.3	15.5	1	20	1001	1001	NM	7.7
22/12/2020 12:48	0.0	2.4	15.4	1	20	1000	1000	NM	7.7
22/12/2020 13:48	0.0	2.4	15.4	1	19	1000	1000	NM	7.7
22/12/2020 14:48	0.0	2.4	15.4	0	18	1000	1000	NM	7.7
22/12/2020 15:48	0.0	2.4	15.3	1	17	1000	1000	NM	7.7
22/12/2020 16:48	0.0	2.5	15.3	1	15	1000	1000	NM	7.7
22/12/2020 17:48	0.0	2.5	15.2	1	14	999	1000	NM	7.7
22/12/2020 18:48	0.0	2.6	15.2	0	12	999	999	NM	7.7
22/12/2020 19:48	0.0	2.6	15.2	0	11	999	999	NM	7.6
22/12/2020 20:48	0.0	2.6	15.1	0	9	999	999	NM	7.6
22/12/2020 21:48	0.0	2.6	15.1	1	8	999	999	NM	7.6
22/12/2020 22:48	0.0	2.7	15.1	0	7	998	999	NM	7.6
22/12/2020 23:48	0.0	2.7	15.1	1	6	998	998	NM	7.5
23/12/2020 00:48	0.0	2.7	15.0	0	5	997	997	NM	7.5
23/12/2020 01:48	0.0	2.7	15.0	0	5	997	997	NM	7.5
23/12/2020 02:48	0.0	2.7	15.0	0	4	996	996	NM	7.5
23/12/2020 03:48	0.0	2.7	15.0	0	4	995	996	NM	7.4
23/12/2020 04:48	0.0	2.7	14.9	0	4	995	996	NM	7.4
23/12/2020 05:48	0.0	2.7	14.9	0	4	995	995	NM	7.4
23/12/2020 06:48	0.0	2.7	14.9	0	3	994	994	NM	7.4
23/12/2020 07:48	0.0	2.8	14.9	0	3	994	994	NM	7.4
23/12/2020 08:48	0.0	2.7	14.9	0	3	994	994	NM	7.4
23/12/2020 09:48	0.0	2.8	14.9	0	3	994	994	NM	7.4
23/12/2020 10:48	0.0	2.7	14.9	0	3	994	994	NM	7.4
23/12/2020 11:48	0.0	2.8	14.9	0	3	993	993	NM	7.4
23/12/2020 12:48	0.0	2.8	14.9	0	2	993	993	NM	7.4
23/12/2020 13:48	0.0	2.8	14.8	0	1	993	993	NM	7.4
23/12/2020 14:48	0.0	2.8	14.8	0	1	993	993	NM	7.4
23/12/2020 15:48	0.0	2.8	14.9	0	0	994	994	NM	7.4
23/12/2020 16:48	0.0	2.8	15.0	0	0	995	995	NM	7.4
23/12/2020 17:48	0.0	2.8	15.1	0	0	996	996	NM	7.4
23/12/2020 18:48	0.0	2.7	15.2	0	0	997	998	NM	7.4
23/12/2020 19:48	0.0	2.7	15.3	0	0	999	999	NM	7.4
23/12/2020 20:48	0.0	2.7	15.4	0	0	1000	1000	NM	7.4
23/12/2020 21:48	0.0	2.7	15.5	0	0	1001	1001	NM	7.4
23/12/2020 22:48	0.0	2.7	15.6	0	0	1002	1003	NM	7.4
23/12/2020 23:48	0.0	2.7	15.6	0	0	1003	1004	NM	7.4
24/12/2020 00:48	0.0	2.7	15.7	0	0	1004	1005	NM	7.4
24/12/2020 01:48	0.0	2.7	15.7	0	0	1006	1006	NM	7.4
24/12/2020 02:48	0.0	2.7	15.8	0	0	1007	1007	NM	7.4
24/12/2020 03:48	0.0	2.7	15.8	0	0	1007	1008	NM	7.3
24/12/2020 04:48	0.0	2.7	15.8	0	0	1008	1008	NM	7.3
24/12/2020 05:48	0.0	2.7	15.8	0	0	1008	1009	NM	7.1
24/12/2020 06:48	0.0	2.6	15.9	0	0	1009	1009	NM	7.1
24/12/2020 07:48	0.0	2.7	15.9	0	1	1010	1010	NM	7.0
24/12/2020 08:48	0.0	2.7	15.9	0	0	1011	1011	NM	6.9
24/12/2020 09:48	0.0	2.7	16.0	0	0	1012	1012	NM	6.8
24/12/2020 10:48	0.0	2.7	16.0	0	0	1013	1014	NM	6.8
24/12/2020 11:48	0.0	2.6	16.0	0	0	1013	1014	NM	6.8
24/12/2020 12:48	0.0	2.6	16.0	0	0	1014	1015	NM	6.8
24/12/2020 13:48	0.0	2.6	16.0	0	0	1015	1015	NM	6.8
24/12/2020 14:48	0.0	2.7	16.0	0	1	1015	1016	NM	6.8
24/12/2020 15:48	0.0	2.7	16.0	0	1	1016	1017	NM	6.8
24/12/2020 16:48	0.0	2.7	15.9	0	1	1017	1017	NM	6.8
24/12/2020 17:48	0.0	2.7	15.9	0	0	1018	1018	NM	6.7
24/12/2020 18:48	0.0	2.7	15.9	0	1	1018	1019	NM	6.6
24/12/2020 19:48	0.0	2.7	15.9	0	1	1019	1020	NM	6.5
24/12/2020 20:48	0.0	2.7	15.9	0	0	1019	1020	NM	6.4
24/12/2020 21:48	0.0	2.7	15.9	0	0	1019	1020	NM	6.4
24/12/2020 22:48	0.0	2.7	15.9	0	0	1019	1020	NM	6.3
24/12/2020 23:48	0.0	2.7	15.9	0	0	1020	1020	NM	6.3
25/12/2020 00:48	0.0	2.7	15.9	0	0	1020	1020	NM	6.1
25/12/2020 01:48	0.0	2.6	15.9	0	1	1020	1020	NM	6.1
25/12/2020 02:48	0.0	2.7	15.9	0	1	1020	1020	NM	6.0
25/12/2020 03:48	0.0	2.6	15.9	0	1	1020	1020	NM	5.9
25/12/2020 04:48	0.0	2.6	15.9	0	1	1020	1020	NM	5.9
25/12/2020 05:48	0.0	2.6	15.8	0	0	1020	1021	NM	5.8
25/12/2020 06:48	0.0	2.6	15.8	0	0	1020	1020	NM	5.7
25/12/2020 07:48	0.0	2.6	15.8	0	0	1020	1020	NM	5.6
25/12/2020 08:48	0.0	2.5	15.8	0	0	1020	1020	NM	5.5
25/12/2020 09:48	0.0	2.6	15.8	0	0	1020	1020	NM	5.4
25/12/2020 10:48	0.0	2.5	15.8	0	1	1020	1020	NM	5.4
25/12/2020 11:48	0.0	2.5	15.8	0	0	1019	1020	NM	5.4
25/12/2020 12:48	0.0	2.5	15.8	0	1	1019	1019	NM	5.4

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
25/12/2020 13:48	0.0	2.5	15.8	0	0	1018	1019	NM	5.4
25/12/2020 14:48	0.0	2.4	15.7	0	0	1018	1018	NM	5.5
25/12/2020 15:48	0.0	2.4	15.7	0	0	1017	1017	NM	5.5
25/12/2020 16:48	0.0	2.5	15.6	0	0	1016	1016	NM	5.5
25/12/2020 17:48	0.0	2.4	15.6	0	0	1015	1016	NM	5.5
25/12/2020 18:48	0.0	2.5	15.6	0	0	1014	1015	NM	5.4
25/12/2020 19:48	0.0	2.5	15.5	0	1	1014	1014	NM	5.4
25/12/2020 20:48	0.0	2.4	15.5	0	1	1013	1014	NM	5.4
25/12/2020 21:48	0.0	2.5	15.5	0	1	1013	1013	NM	5.4
25/12/2020 22:48	0.0	2.4	15.4	0	0	1012	1012	NM	5.4
25/12/2020 23:48	0.0	2.5	15.4	0	1	1011	1012	NM	5.4
26/12/2020 00:48	0.0	2.5	15.2	0	1	1010	1010	NM	5.4
26/12/2020 01:48	0.0	2.4	15.2	0	1	1009	1009	NM	5.4
26/12/2020 02:48	0.0	2.5	15.1	0	1	1008	1008	NM	5.4
26/12/2020 03:48	0.0	2.5	15.0	0	0	1007	1007	NM	5.4
26/12/2020 04:48	0.0	2.6	14.9	0	1	1006	1006	NM	5.4
26/12/2020 05:48	0.0	2.6	14.8	0	1	1005	1005	NM	5.4
26/12/2020 06:48	0.0	2.6	14.7	0	1	1004	1004	NM	5.5
26/12/2020 07:48	0.0	2.6	14.5	0	1	1004	1004	NM	5.5
26/12/2020 08:48	0.0	2.6	14.4	0	1	1003	1003	NM	5.6
26/12/2020 09:48	0.0	2.7	14.2	0	1	1001	1002	NM	5.6
26/12/2020 10:48	0.0	2.7	14.1	0	1	1000	1000	NM	5.6
26/12/2020 11:48	0.0	2.7	14.0	0	1	998	999	NM	5.7
26/12/2020 12:48	0.0	2.8	13.8	0	1	996	996	NM	5.7
26/12/2020 13:48	0.0	2.8	13.6	0	1	994	994	NM	5.8
26/12/2020 14:48	0.0	2.8	13.5	0	1	991	992	NM	5.8
26/12/2020 15:48	0.0	2.9	13.3	0	1	989	989	NM	5.9
26/12/2020 16:48	0.0	3.0	13.1	0	1	987	988	NM	5.9
26/12/2020 17:48	0.0	3.1	12.9	0	1	984	985	NM	5.9
26/12/2020 18:48	0.0	3.0	12.8	0	0	982	982	NM	6.0
26/12/2020 19:48	0.0	3.1	12.6	0	0	979	979	NM	6.0
26/12/2020 20:48	0.0	2.1	12.3	0	1	976	976	NM	6.1
26/12/2020 21:48	0.0	1.5	12.2	0	0	973	973	NM	6.1
26/12/2020 22:48	0.0	1.3	12.1	0	1	970	970	NM	6.1
26/12/2020 23:48	0.0	1.2	12.0	0	0	967	967	NM	6.2
27/12/2020 00:48	0.0	1.1	11.8	0	0	964	965	NM	6.2
27/12/2020 01:48	0.0	1.2	11.8	0	0	962	962	NM	6.3
27/12/2020 02:48	0.0	1.3	11.7	0	0	962	961	NM	6.3
27/12/2020 03:48	0.0	1.3	11.6	0	0	960	960	NM	6.3
27/12/2020 04:48	0.0	1.3	11.5	0	0	960	960	NM	6.3
27/12/2020 05:48	0.0	1.4	11.4	0	1	960	961	NM	6.4
27/12/2020 06:48	0.0	1.5	11.3	0	0	960	960	NM	6.4
27/12/2020 07:48	0.0	1.6	11.3	0	0	960	960	NM	6.3
27/12/2020 08:48	0.0	1.7	11.2	0	0	960	960	NM	6.3
27/12/2020 09:48	0.0	1.7	11.2	0	1	960	960	NM	6.3
27/12/2020 10:48	0.0	1.7	11.1	0	0	960	960	NM	6.2
27/12/2020 11:48	0.0	1.8	11.1	0	0	958	958	NM	6.2
27/12/2020 12:48	0.0	1.9	11.0	0	0	958	958	NM	6.2
27/12/2020 13:48	0.0	1.9	11.0	0	1	957	958	NM	6.2
27/12/2020 14:48	0.0	1.9	10.9	0	0	957	957	NM	6.2
27/12/2020 15:48	0.0	1.9	10.9	0	0	957	957	NM	6.3
27/12/2020 16:48	0.0	2.0	10.8	0	1	957	957	NM	6.3
27/12/2020 17:48	0.0	2.0	10.8	0	0	957	957	NM	6.3
27/12/2020 18:48	0.0	2.1	10.8	0	1	957	957	NM	6.2
27/12/2020 19:48	0.0	2.1	10.7	0	1	957	957	NM	6.2
27/12/2020 20:48	0.0	2.1	10.8	0	1	957	957	NM	6.1
27/12/2020 21:48	0.0	2.2	10.8	0	0	957	957	NM	6.1
27/12/2020 22:48	0.0	2.2	10.8	0	0	957	957	NM	6.1
27/12/2020 23:48	0.0	2.2	10.9	0	0	957	957	NM	6.1
28/12/2020 00:48	0.0	2.3	10.9	0	0	956	957	NM	6.1
28/12/2020 01:48	0.0	2.3	11.0	0	0	956	956	NM	6.0
28/12/2020 02:48	0.0	2.3	11.0	0	1	956	956	NM	5.9
28/12/2020 03:48	0.0	2.4	11.1	0	1	956	956	NM	5.9
28/12/2020 04:48	0.0	2.4	11.2	0	1	956	957	NM	5.9
28/12/2020 05:48	0.0	2.4	11.3	0	1	957	958	NM	5.9
28/12/2020 06:48	0.0	2.4	11.4	0	1	959	959	NM	5.8
28/12/2020 07:48	0.0	2.4	11.5	0	1	960	960	NM	5.8
28/12/2020 08:48	0.0	2.4	11.6	0	1	961	961	NM	5.8
28/12/2020 09:48	0.0	2.4	11.7	0	2	962	962	NM	5.8
28/12/2020 10:48	0.0	2.4	11.8	0	2	963	963	NM	5.8
28/12/2020 11:48	0.0	2.4	11.9	0	2	964	964	NM	5.8
28/12/2020 12:48	0.0	2.4	12.0	0	2	964	964	NM	5.8
28/12/2020 13:48	0.0	2.5	12.1	0	2	965	965	NM	5.8
28/12/2020 14:48	0.0	2.5	12.2	0	2	966	966	NM	5.8
28/12/2020 15:48	0.0	2.5	12.3	0	2	966	966	NM	5.8
28/12/2020 16:48	0.0	2.5	12.4	0	2	967	967	NM	5.8
28/12/2020 17:48	0.0	2.5	12.4	0	1	967	967	NM	5.8
28/12/2020 18:48	0.0	2.5	12.5	0	2	968	968	NM	5.8
28/12/2020 19:48	0.0	2.6	12.6	0	1	969	969	NM	5.8
28/12/2020 20:48	0.0	2.6	12.6	0	1	969	969	NM	5.8
28/12/2020 21:48	0.0	2.6	12.7	0	1	970	970	NM	5.7
28/12/2020 22:48	0.0	2.6	12.7	0	1	970	970	NM	5.7
28/12/2020 23:48	0.0	2.6	12.8	0	1	970	971	NM	5.7
29/12/2020 00:48	0.0	2.6	12.8	0	1	971	971	NM	5.6
29/12/2020 01:48	0.0	2.6	12.9	0	0	971	972	NM	5.6
29/12/2020 02:48	0.0	2.6	13.0	0	1	972	972	NM	5.6
29/12/2020 03:48	0.0	2.6	13.0	0	1	973	973	NM	5.6
29/12/2020 04:48	0.0	2.7	13.1	0	0	973	973	NM	5.6
29/12/2020 05:48	0.0	2.7	13.1	0	1	974	974	NM	5.5
29/12/2020 06:48	0.0	2.7	13.2	0	0	974	975	NM	5.4
29/12/2020 07:48	0.0	2.6	13.2	0	0	975	975	NM	5.4
29/12/2020 08:48	0.0	2.7	13.3	0	1	976	977	NM	5.4
29/12/2020 09:48	0.0	2.7	13.3	0	1	977	977	NM	5.4
29/12/2020 10:48	0.0	2.7	13.4	0	1	978	979	NM	5.4
29/12/2020 11:48	0.0	2.7	13.4	0	1	979	979	NM	5.4
29/12/2020 12:48	0.0	2.7	13.4	0	1	980	980	NM	5.4
29/12/2020 13:48	0.0	2.7	13.5	0	1	981	981	NM	5.4
29/12/2020 14:48	0.0	2.8	13.5	0	1	982	982	NM	5.4
29/12/2020 15:48	0.0	2.7	13.5	0	1	983	983	NM	5.4
29/12/2020 16:48	0.0	2.7	13.5	0	1	984	984	NM	5.4
29/12/2020 17:48	0.0	2.7	13.5	0	1	984	985	NM	5.4
29/12/2020 18:48	0.0	2.8	13.5	0	1	985	985	NM	5.4
29/12/2020 19:48	0.0	2.8	13.5	0	1	985	985	NM	5.3
29/12/2020 20:48	0.0	2.8	13.5	0	1	986	986	NM	5.3
29/12/2020 21:48	0.0	2.8	13.5	0	1	986	986	NM	5.2
29/12/2020 22:48	0.0	2.8	13.5	0	1	987	987	NM	5.1
29/12/2020 23:48	0.0	2.8	13.5	0	1	987	987	NM	5.1
30/12/2020 00:48	0.0	2.8	13.5	0	1	987	987	NM	5.1
30/12/2020 01:48	0.0	2.8	13.5	0	1	987	987	NM	5.0
30/12/2020 02:48	0.0	2.8	13.6	0	1	987	988	NM	4.9
30/12/2020 03:48	0.0	2.8	13.5	0	1	987	988	NM	4.9
30/12/2020 04:48	0.0	2.8	13.6	0	1	988	988	NM	4.9
30/12/2020 05:48	0.0	2.8	13.5	0	1	988	988	NM	4.9
30/12/2020 06:48	0.0	2.8	13.6	0	1	988	988	NM	4.9

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
30/12/2020 07:48	0.0	2.9	13.6	0	1	989	989	NM	4.9
30/12/2020 08:48	0.0	2.9	13.6	0	1	989	989	NM	4.8
30/12/2020 09:48	0.0	2.8	13.6	0	1	989	990	NM	4.8
30/12/2020 10:48	0.0	2.8	13.6	0	1	990	990	NM	4.8
30/12/2020 11:48	0.0	2.9	13.5	0	1	990	990	NM	4.8
30/12/2020 12:48	0.0	2.9	13.5	0	0	989	990	NM	4.9
30/12/2020 13:48	0.0	2.8	13.5	0	1	990	990	NM	4.9
30/12/2020 14:48	0.0	2.9	13.5	0	0	990	990	NM	4.9
30/12/2020 15:48	0.0	2.9	13.5	0	1	990	990	NM	4.9
30/12/2020 16:48	0.0	2.9	13.4	0	1	990	990	NM	4.9
30/12/2020 17:48	0.0	2.9	13.4	0	0	990	991	NM	4.9
30/12/2020 18:48	0.0	2.9	13.4	0	0	990	991	NM	4.9
30/12/2020 19:48	0.0	2.9	13.4	0	0	991	991	NM	4.9
30/12/2020 20:48	0.0	2.9	13.4	0	0	991	991	NM	4.9
30/12/2020 21:48	0.0	2.9	13.4	0	0	991	991	NM	4.9
30/12/2020 22:48	0.0	2.9	13.3	0	0	991	992	NM	4.9
30/12/2020 23:48	0.0	2.9	13.3	0	0	991	992	NM	4.8
31/12/2020 00:48	0.0	2.9	13.3	0	0	991	992	NM	4.8
31/12/2020 01:48	0.0	2.9	13.3	0	0	991	991	NM	4.8
31/12/2020 02:48	0.0	2.9	13.3	0	1	991	991	NM	4.8
31/12/2020 03:48	0.0	3.0	13.3	0	1	991	991	NM	4.8
31/12/2020 04:48	0.0	3.0	13.2	0	0	990	991	NM	4.8
31/12/2020 05:48	0.0	3.0	13.3	0	0	991	991	NM	4.8
31/12/2020 06:48	0.0	3.0	13.2	0	1	991	991	NM	4.7
31/12/2020 07:48	0.0	3.0	13.2	0	0	991	992	NM	4.7
31/12/2020 08:48	0.0	3.0	13.2	0	0	992	992	NM	4.7
31/12/2020 09:48	0.0	3.0	13.2	0	0	992	992	NM	4.7
31/12/2020 10:48	0.0	3.0	13.2	0	0	992	993	NM	4.7
31/12/2020 11:48	0.0	3.0	13.2	0	0	992	993	NM	4.7
31/12/2020 12:48	0.0	3.0	13.1	0	1	992	993	NM	4.7
31/12/2020 13:48	0.0	3.0	13.2	0	0	992	993	NM	4.7
31/12/2020 14:48	0.0	3.0	13.1	0	0	993	993	NM	4.8
31/12/2020 15:48	0.0	3.0	13.1	0	1	993	993	NM	4.8
31/12/2020 16:48	0.0	3.0	13.1	0	1	994	994	NM	4.8
31/12/2020 17:48	0.0	3.0	13.1	0	1	994	994	NM	4.8
31/12/2020 18:48	0.0	3.0	13.1	0	1	995	995	NM	4.8
31/12/2020 19:48	0.0	3.0	13.1	0	1	995	996	NM	4.8
31/12/2020 20:48	0.0	3.0	13.1	0	1	996	996	NM	4.8
31/12/2020 21:48	0.0	3.0	13.1	0	1	996	996	NM	4.8
31/12/2020 22:48	0.0	3.0	13.1	0	1	997	997	NM	4.7
31/12/2020 23:48	0.0	3.1	13.1	0	1	997	997	NM	4.7
01/01/2021 00:48	0.0	3.0	13.0	0	0	997	997	NM	4.7
01/01/2021 01:48	0.0	3.0	13.0	0	0	997	998	NM	4.7
01/01/2021 02:48	0.0	3.1	13.0	0	0	998	998	NM	4.7
01/01/2021 03:48	0.0	3.1	13.0	0	0	998	998	NM	4.7
01/01/2021 04:48	0.0	3.0	13.0	0	0	998	998	NM	4.6
01/01/2021 05:48	0.0	3.0	13.0	0	0	998	999	NM	4.6
01/01/2021 06:48	0.0	3.0	13.0	0	1	999	999	NM	4.6
01/01/2021 07:48	0.0	3.1	13.0	0	1	999	1000	NM	4.6
01/01/2021 08:48	0.0	3.1	12.9	0	1	1000	1000	NM	4.6
01/01/2021 09:48	0.0	3.1	12.9	0	0	1000	1000	NM	4.6
01/01/2021 10:48	0.0	3.1	12.9	0	0	1000	1001	NM	4.6
01/01/2021 11:48	0.0	3.1	12.9	0	0	1001	1001	NM	4.6
01/01/2021 12:48	0.0	3.0	12.9	0	0	1000	1000	NM	4.6
01/01/2021 13:48	0.0	3.0	12.9	0	0	1000	1001	NM	4.6
01/01/2021 14:48	0.0	3.1	12.8	0	1	1001	1001	NM	4.7
01/01/2021 15:48	0.0	3.1	12.8	0	0	1001	1002	NM	4.8
01/01/2021 16:48	0.0	3.1	12.8	0	1	1002	1002	NM	4.8
01/01/2021 17:48	0.0	3.1	12.8	0	0	1002	1002	NM	4.8
01/01/2021 18:48	0.0	3.2	12.8	0	0	1002	1003	NM	4.8
01/01/2021 19:48	0.0	3.1	12.8	0	0	1003	1004	NM	4.7
01/01/2021 20:48	0.0	3.2	12.8	0	1	1004	1004	NM	4.6
01/01/2021 21:48	0.0	3.2	12.7	0	1	1004	1004	NM	4.6
01/01/2021 22:48	0.0	3.2	12.7	0	1	1004	1004	NM	4.6
01/01/2021 23:48	0.0	3.3	12.7	0	0	1004	1005	NM	4.5
02/01/2021 00:48	0.0	3.2	12.7	0	1	1004	1005	NM	4.4
02/01/2021 01:48	0.0	3.3	12.7	0	1	1004	1005	NM	4.4
02/01/2021 02:48	0.0	3.3	12.7	0	1	1004	1005	NM	4.3
02/01/2021 03:48	0.0	3.2	12.7	0	0	1004	1005	NM	4.3
02/01/2021 04:48	0.0	3.3	12.7	0	0	1004	1005	NM	4.2
02/01/2021 05:48	0.0	3.3	12.7	0	1	1004	1004	NM	4.1
02/01/2021 06:48	0.0	3.2	12.7	0	0	1004	1004	NM	4.1
02/01/2021 07:48	0.0	3.2	12.7	0	0	1004	1004	NM	4.1
02/01/2021 08:48	0.0	3.3	12.7	0	0	1004	1004	NM	4.1
02/01/2021 09:48	0.0	3.2	12.7	0	0	1004	1005	NM	4.0
02/01/2021 10:48	0.0	3.2	12.7	0	1	1004	1004	NM	4.0
02/01/2021 11:48	0.0	3.2	12.7	0	1	1004	1004	NM	4.0
02/01/2021 12:48	0.0	3.2	12.7	0	0	1004	1004	NM	4.1
02/01/2021 13:48	0.0	3.3	12.7	0	0	1004	1004	NM	4.1
02/01/2021 14:48	0.0	3.3	12.7	0	1	1004	1004	NM	4.2
02/01/2021 15:48	0.0	3.3	13.1	0	1	1004	1005	NM	4.2
02/01/2021 16:48	0.0	3.3	12.8	0	0	1005	1005	NM	4.3
02/01/2021 17:48	0.0	3.3	12.6	0	1	1005	1005	NM	4.3
02/01/2021 18:48	0.0	3.3	12.6	0	0	1005	1006	NM	4.2
02/01/2021 19:48	0.0	3.4	12.6	0	0	1006	1006	NM	4.2
02/01/2021 20:48	0.0	3.3	12.7	0	0	1006	1006	NM	4.2
02/01/2021 21:48	0.0	3.3	12.7	0	0	1006	1007	NM	4.1
02/01/2021 22:48	0.0	3.4	12.6	0	1	1007	1007	NM	4.1
02/01/2021 23:48	0.0	3.4	12.5	0	1	1007	1007	NM	4.1
03/01/2021 00:48	0.0	3.4	12.5	0	0	1007	1007	NM	4.1
03/01/2021 01:48	0.0	3.3	12.5	0	0	1007	1007	NM	4.1
03/01/2021 02:48	0.0	3.3	12.5	0	0	1007	1007	NM	4.1
03/01/2021 03:48	0.0	3.4	12.5	0	0	1007	1008	NM	4.1
03/01/2021 04:48	0.0	3.4	12.4	0	0	1007	1007	NM	4.0
03/01/2021 05:48	0.0	3.4	12.4	0	0	1007	1007	NM	4.0
03/01/2021 06:48	0.0	3.4	12.4	0	0	1007	1008	NM	4.0
03/01/2021 07:48	0.0	3.4	12.4	0	1	1007	1008	NM	4.0
03/01/2021 08:48	0.0	3.4	12.5	0	1	1008	1008	NM	4.0
03/01/2021 09:48	0.0	3.4	12.4	0	1	1008	1009	NM	3.9
03/01/2021 10:48	0.0	3.4	12.5	0	0	1009	1009	NM	3.9
03/01/2021 11:48	0.0	3.4	12.5	0	1	1009	1009	NM	4.0
03/01/2021 12:48	0.0	3.4	12.5	0	1	1009	1009	NM	4.0
03/01/2021 13:48	0.0	3.4	12.5	0	1	1009	1009	NM	4.1
03/01/2021 14:48	0.0	3.4	12.4	0	0	1009	1009	NM	4.2
03/01/2021 15:48	0.0	3.4	12.5	0	0	1009	1010	NM	4.2
03/01/2021 16:48	0.0	3.4	12.5	0	0	1009	1010	NM	4.3
03/01/2021 17:48	0.0	3.4	12.5	0	0	1010	1010	NM	4.3
03/01/2021 18:48	0.0	3.4	12.6	0	0	1011	1011	NM	4.2
03/01/2021 19:48	0.0	3.4	12.6	0	0	1011	1011	NM	4.2
03/01/2021 20:48	0.0	3.4	12.7	0	0	1011	1012	NM	4.1
03/01/2021 21:48	0.0	3.4	12.7	0	0	1011	1012	NM	4.1
03/01/2021 22:48	0.0	3.4	12.7	0	0	1012	1012	NM	4.1
03/01/2021 23:48	0.0	3.4	12.7	0	0	1012	1012	NM	4.1
04/01/2021 00:48	0.0	3.4	12.7	0	0	1012	1012	NM	4.0

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
04/01/2021 01:48	0.0	3.4	12.8	0	1	1012	1012	NM	4.0
04/01/2021 02:48	0.0	3.4	12.8	0	0	1012	1012	NM	4.0
04/01/2021 03:48	0.0	3.4	12.8	0	0	1012	1012	NM	3.9
04/01/2021 04:48	0.0	3.4	12.8	0	0	1012	1012	NM	3.9
04/01/2021 05:48	0.0	3.4	12.7	0	0	1012	1012	NM	3.9
04/01/2021 06:48	0.0	3.5	12.7	0	0	1012	1013	NM	3.9
04/01/2021 07:48	0.0	3.4	12.7	0	0	1013	1013	NM	3.9
04/01/2021 08:48	0.0	3.4	12.7	0	0	1013	1014	NM	3.9
04/01/2021 09:48	0.0	3.5	12.7	0	0	1013	1014	NM	3.9
04/01/2021 10:48	0.0	3.5	12.7	0	0	1013	1014	NM	3.9
04/01/2021 11:48	0.0	3.4	12.8	0	0	1013	1013	NM	3.9
04/01/2021 12:48	0.0	3.4	12.8	0	0	1013	1013	NM	3.9
04/01/2021 13:48	0.0	3.5	12.8	0	1	1012	1013	NM	3.9
04/01/2021 14:48	0.0	3.4	12.8	0	0	1012	1013	NM	4.0
04/01/2021 15:48	0.0	3.4	12.9	0	1	1012	1013	NM	4.0
04/01/2021 16:48	0.0	3.4	12.9	0	0	1013	1013	NM	4.1
04/01/2021 17:48	0.0	3.4	13.0	0	0	1013	1013	NM	4.1
04/01/2021 18:48	0.0	3.4	13.0	0	0	1013	1013	NM	4.1
04/01/2021 19:48	0.0	3.4	13.1	0	0	1013	1013	NM	4.1
04/01/2021 20:48	0.0	3.4	13.1	0	0	1013	1014	NM	4.1
04/01/2021 21:48	0.0	3.3	13.1	0	0	1013	1014	NM	4.0
04/01/2021 22:48	0.0	3.3	13.2	0	0	1013	1014	NM	4.0
04/01/2021 23:48	0.0	3.3	13.2	0	0	1013	1013	NM	4.0
05/01/2021 00:48	0.0	3.3	13.3	0	0	1013	1013	NM	4.0
05/01/2021 01:48	0.0	3.2	13.3	0	1	1013	1013	NM	4.0
05/01/2021 02:48	0.0	3.3	13.3	0	0	1012	1013	NM	4.0
05/01/2021 03:48	0.0	3.2	13.3	0	0	1012	1013	NM	4.0
05/01/2021 04:48	0.0	3.2	13.3	0	1	1012	1013	NM	3.9
05/01/2021 05:48	0.0	3.3	13.3	0	0	1012	1013	NM	3.9
05/01/2021 06:48	0.0	3.3	13.3	0	0	1013	1013	NM	3.9
05/01/2021 07:48	0.0	3.3	13.3	0	1	1013	1013	NM	3.9
05/01/2021 08:48	0.0	3.3	13.3	0	0	1013	1013	NM	3.9
05/01/2021 09:48	0.0	3.3	13.3	0	0	1013	1014	NM	3.9
05/01/2021 10:48	0.0	3.3	13.3	0	0	1013	1014	NM	3.9
05/01/2021 11:48	0.0	3.3	13.3	0	0	1013	1013	NM	3.9
05/01/2021 12:48	0.0	3.2	13.2	0	0	1012	1013	NM	3.9
05/01/2021 13:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.0
05/01/2021 14:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.1
05/01/2021 15:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.1
05/01/2021 16:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.2
05/01/2021 17:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.2
05/01/2021 18:48	0.0	3.3	13.3	0	1	1013	1013	NM	4.1
05/01/2021 19:48	0.0	3.3	13.2	0	0	1013	1013	NM	4.1
05/01/2021 20:48	0.0	3.3	13.3	0	1	1012	1013	NM	4.1
05/01/2021 21:48	0.0	3.3	13.2	0	1	1012	1013	NM	4.1
05/01/2021 22:48	0.0	3.3	13.2	0	0	1012	1013	NM	4.1
05/01/2021 23:48	0.0	3.3	13.2	0	0	1012	1012	NM	4.1
06/01/2021 00:48	0.0	3.3	13.2	0	0	1012	1012	NM	4.0
06/01/2021 01:48	0.0	3.3	13.2	0	0	1011	1012	NM	4.0
06/01/2021 02:48	0.0	3.3	13.2	0	0	1011	1012	NM	3.9
06/01/2021 03:48	0.0	3.3	13.2	0	0	1011	1012	NM	3.9
06/01/2021 04:48	0.0	3.3	13.1	0	0	1011	1011	NM	3.9
06/01/2021 05:48	0.0	3.4	13.1	0	0	1011	1011	NM	3.9
06/01/2021 06:48	0.0	3.3	13.1	0	0	1011	1011	NM	3.8
06/01/2021 07:48	0.0	3.4	13.1	0	1	1011	1011	NM	3.8
06/01/2021 08:48	0.0	3.3	13.1	0	0	1011	1011	NM	3.8
06/01/2021 09:48	0.0	3.3	13.1	0	0	1011	1011	NM	3.8
06/01/2021 10:48	0.0	3.3	13.1	0	0	1011	1011	NM	3.8
06/01/2021 11:48	0.0	3.3	13.1	0	1	1010	1010	NM	3.8
06/01/2021 12:48	0.0	3.4	13.0	0	0	1009	1010	NM	3.8
06/01/2021 13:48	0.0	3.4	13.0	0	0	1009	1009	NM	3.9
06/01/2021 14:48	0.0	3.4	13.0	0	0	1009	1009	NM	3.9
06/01/2021 15:48	0.0	3.4	13.0	0	0	1009	1009	NM	4.0
06/01/2021 16:48	0.0	3.4	12.9	0	0	1009	1010	NM	4.0
06/01/2021 17:48	0.0	3.5	12.9	0	0	1009	1009	NM	4.0
06/01/2021 18:48	0.0	3.4	12.9	0	0	1009	1009	NM	3.9
06/01/2021 19:48	0.0	3.4	12.9	0	0	1009	1009	NM	3.9
06/01/2021 20:48	0.0	3.4	12.9	0	1	1009	1009	NM	3.8
06/01/2021 21:48	0.0	3.5	12.9	0	0	1008	1009	NM	3.8
06/01/2021 22:48	0.0	3.4	12.9	0	1	1008	1009	NM	3.7
06/01/2021 23:48	0.0	3.4	12.8	0	1	1008	1008	NM	3.6
07/01/2021 00:48	0.0	3.4	12.8	0	0	1007	1008	NM	3.6
07/01/2021 01:48	0.0	3.4	12.8	0	0	1007	1008	NM	3.5
07/01/2021 02:48	0.0	3.4	12.8	0	0	1007	1008	NM	3.5
07/01/2021 03:48	0.0	3.4	12.8	0	0	1007	1007	NM	3.4
07/01/2021 04:48	0.0	3.4	12.8	0	0	1007	1007	NM	3.4
07/01/2021 05:48	0.0	3.4	12.8	0	0	1006	1007	NM	3.4
07/01/2021 06:48	0.0	3.4	12.8	0	0	1006	1006	NM	3.4
07/01/2021 07:48	0.0	3.4	12.8	0	0	1006	1006	NM	3.4
07/01/2021 08:48	0.0	3.4	12.8	0	0	1006	1007	NM	3.4
07/01/2021 09:48	0.0	3.4	12.8	0	1	1006	1007	NM	3.4
07/01/2021 10:48	0.0	3.4	12.8	0	0	1006	1006	NM	3.4
07/01/2021 11:48	0.0	3.4	12.8	0	1	1005	1006	NM	3.4
07/01/2021 12:48	0.0	3.4	12.7	0	1	1004	1005	NM	3.4
07/01/2021 13:48	0.0	3.4	12.7	0	0	1004	1004	NM	3.4
07/01/2021 14:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 15:48	0.0	3.4	12.7	0	0	1004	1004	NM	3.5
07/01/2021 16:48	0.0	3.5	12.7	0	0	1004	1004	NM	3.5
07/01/2021 17:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 18:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 19:48	0.0	3.4	12.7	0	0	1004	1004	NM	3.5
07/01/2021 20:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 21:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 22:48	0.0	3.4	12.7	0	1	1004	1004	NM	3.5
07/01/2021 23:48	0.0	3.4	12.7	0	0	1004	1004	NM	3.5
08/01/2021 00:48	0.0	3.5	12.6	0	1	1004	1004	NM	3.5
08/01/2021 01:48	0.0	3.5	12.7	0	0	1004	1004	NM	3.5
08/01/2021 02:48	0.0	3.4	12.6	0	0	1004	1004	NM	3.5
08/01/2021 03:48	0.0	3.5	12.6	0	1	1004	1004	NM	3.5
08/01/2021 04:48	0.0	3.4	12.6	0	1	1004	1004	NM	3.5
08/01/2021 05:48	0.0	3.4	12.6	0	0	1004	1004	NM	3.5
08/01/2021 06:48	0.0	3.5	12.6	0	1	1004	1004	NM	3.5
08/01/2021 07:48	0.0	3.5	12.6	0	0	1004	1005	NM	3.5
08/01/2021 08:48	0.0	3.5	12.6	0	0	1005	1006	NM	3.5
08/01/2021 09:48	0.0	3.5	12.6	0	1	1005	1006	NM	3.5
08/01/2021 10:48	0.0	3.5	12.6	0	0	1006	1006	NM	3.5
08/01/2021 11:48	0.0	3.5	12.6	0	0	1006	1007	NM	3.5
08/01/2021 12:48	0.0	3.4	12.7	0	0	1006	1007	NM	3.5
08/01/2021 13:48	0.0	3.5	12.7	0	1	1007	1007	NM	3.6
08/01/2021 14:48	0.0	3.4	12.8	0	0	1007	1008	NM	3.6
08/01/2021 15:48	0.0	3.4	12.8	0	0	1008	1008	NM	3.6
08/01/2021 16:48	0.0	3.4	12.9	0	0	1009	1009	NM	3.6
08/01/2021 17:48	0.0	3.4	12.9	0	0	1009	1009	NM	3.6
08/01/2021 18:48	0.0	3.4	13.0	0	0	1010	1010	NM	3.6

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
08/01/2021 19:48	0.0	3.4	13.0	0	1	1010	1011	NM	3.6
08/01/2021 20:48	0.0	3.4	13.1	0	0	1011	1011	NM	3.6
08/01/2021 21:48	0.0	3.3	13.1	0	0	1011	1012	NM	3.6
08/01/2021 22:48	0.0	3.4	13.1	0	0	1011	1012	NM	3.6
08/01/2021 23:48	0.0	3.3	13.1	0	1	1011	1012	NM	3.6
09/01/2021 00:48	0.0	3.4	13.1	0	0	1011	1012	NM	3.6
09/01/2021 01:48	0.0	3.4	13.2	0	1	1012	1012	NM	3.6
09/01/2021 02:48	0.0	3.4	13.2	0	1	1012	1013	NM	3.6
09/01/2021 03:48	0.0	3.4	13.2	0	0	1012	1013	NM	3.6
09/01/2021 04:48	0.0	3.4	13.2	0	0	1013	1013	NM	3.6
09/01/2021 05:48	0.0	3.4	13.2	0	0	1013	1013	NM	3.6
09/01/2021 06:48	0.0	3.4	13.2	0	1	1013	1014	NM	3.5
09/01/2021 07:48	0.0	3.4	13.2	0	1	1013	1014	NM	3.5
09/01/2021 08:48	0.0	3.4	13.2	0	0	1014	1014	NM	3.4
09/01/2021 09:48	0.0	3.4	13.1	0	0	1014	1015	NM	3.4
09/01/2021 10:48	0.0	3.4	13.2	0	0	1014	1015	NM	3.4
09/01/2021 11:48	0.0	3.4	13.1	0	0	1014	1015	NM	3.4
09/01/2021 12:48	0.0	3.4	13.1	0	0	1013	1014	NM	3.4
09/01/2021 13:48	0.0	3.5	13.1	0	0	1013	1014	NM	3.4
09/01/2021 14:48	0.0	3.4	13.1	0	1	1013	1014	NM	3.5
09/01/2021 15:48	0.0	3.4	13.1	0	1	1013	1014	NM	3.5
09/01/2021 16:48	0.0	3.5	13.1	0	0	1013	1014	NM	3.6
09/01/2021 17:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.6
09/01/2021 18:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.6
09/01/2021 19:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.6
09/01/2021 20:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.6
09/01/2021 21:48	0.0	3.4	13.0	0	1	1013	1014	NM	3.6
09/01/2021 22:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.5
09/01/2021 23:48	0.0	3.4	13.0	0	0	1013	1014	NM	3.5
10/01/2021 00:48	0.0	3.4	13.0	0	0	1013	1013	NM	3.5
10/01/2021 01:48	0.0	3.5	13.0	0	0	1013	1013	NM	3.5
10/01/2021 02:48	0.0	3.4	13.0	0	0	1012	1013	NM	3.5
10/01/2021 03:48	0.0	3.4	13.0	0	0	1012	1013	NM	3.5
10/01/2021 04:48	0.0	3.5	12.9	0	0	1012	1012	NM	3.5
10/01/2021 05:48	0.0	3.5	12.9	0	0	1012	1012	NM	3.5
10/01/2021 06:48	0.0	3.5	12.9	0	1	1011	1012	NM	3.5
10/01/2021 07:48	0.0	3.4	12.9	0	0	1011	1012	NM	3.5
10/01/2021 08:48	0.0	3.4	12.9	0	1	1012	1012	NM	3.5
10/01/2021 09:48	0.0	3.4	12.9	0	0	1012	1012	NM	3.6
10/01/2021 10:48	0.0	3.5	12.9	0	1	1012	1012	NM	3.6
10/01/2021 11:48	0.0	3.5	12.9	0	0	1012	1012	NM	3.6
10/01/2021 12:48	0.0	3.4	12.8	0	0	1011	1011	NM	3.6
10/01/2021 13:48	0.0	3.5	12.8	0	0	1010	1011	NM	3.6
10/01/2021 14:48	0.0	3.5	12.8	0	0	1010	1010	NM	3.7
10/01/2021 15:48	0.0	3.5	12.8	0	1	1010	1010	NM	3.7
10/01/2021 16:48	0.0	3.5	12.8	0	0	1009	1010	NM	3.8
10/01/2021 17:48	0.0	3.5	12.7	0	0	1009	1009	NM	3.8
10/01/2021 18:48	0.0	3.5	12.7	0	0	1009	1009	NM	3.8
10/01/2021 19:48	0.0	3.5	12.7	0	0	1009	1009	NM	3.9
10/01/2021 20:48	0.0	3.5	12.7	0	1	1008	1009	NM	3.9
10/01/2021 21:48	0.0	3.5	12.7	0	0	1008	1008	NM	3.9
10/01/2021 22:48	0.0	3.5	12.6	0	0	1007	1008	NM	3.9
10/01/2021 23:48	0.0	3.5	12.6	0	0	1007	1007	NM	4.0
11/01/2021 00:48	0.0	3.5	12.5	0	1	1006	1007	NM	4.0
11/01/2021 01:48	0.0	3.5	12.5	0	1	1005	1006	NM	4.1
11/01/2021 02:48	0.0	3.6	12.5	0	0	1005	1005	NM	4.1
11/01/2021 03:48	0.0	3.6	12.4	0	1	1004	1005	NM	4.1
11/01/2021 04:48	0.0	3.6	12.4	0	0	1004	1004	NM	4.1
11/01/2021 05:48	0.0	3.6	12.4	0	0	1003	1004	NM	4.2
11/01/2021 06:48	0.0	3.6	12.3	0	0	1003	1003	NM	4.2
11/01/2021 07:48	0.0	3.7	12.3	0	0	1002	1003	NM	4.3
11/01/2021 08:48	0.0	3.7	12.2	0	0	1002	1003	NM	4.3
11/01/2021 09:48	0.0	3.7	12.2	0	0	1002	1002	NM	4.3
11/01/2021 10:48	0.0	3.7	12.2	0	0	1001	1002	NM	4.3
11/01/2021 11:48	0.0	3.7	12.1	0	1	1000	1000	NM	4.4
11/01/2021 12:48	0.0	3.8	12.1	0	0	999	1000	NM	4.4
11/01/2021 13:48	0.0	3.8	12.0	0	1	998	999	NM	4.4
11/01/2021 14:48	0.0	3.5	12.0	0	0	997	998	NM	4.5
11/01/2021 15:48	0.0	3.5	12.0	0	1	997	997	NM	4.6
11/01/2021 16:48	0.0	3.3	11.9	0	1	997	997	NM	4.6
11/01/2021 17:48	0.0	3.2	11.8	0	0	996	996	NM	4.6
11/01/2021 18:48	0.0	3.1	11.8	0	1	996	996	NM	4.7
11/01/2021 19:48	0.0	3.1	11.8	0	1	995	996	NM	4.8
11/01/2021 20:48	0.0	3.1	11.7	0	0	995	995	NM	4.8
11/01/2021 21:48	0.0	2.8	12.0	0	1	995	1000	NM	4.9
11/01/2021 22:48	0.0	2.6	12.2	0	1	994	1002	NM	5.0
11/01/2021 23:48	0.0	2.7	12.0	0	0	994	1002	NM	5.1
12/01/2021 00:48	0.0	2.6	12.0	0	0	994	1002	NM	5.2
12/01/2021 01:48	0.0	2.2	12.1	0	1	994	1001	NM	5.4
12/01/2021 02:48	0.0	2.0	12.1	0	1	995	1001	NM	5.4
12/01/2021 03:48	0.0	2.0	12.0	0	1	995	1001	NM	5.3
12/01/2021 04:48	0.0	2.0	12.0	0	1	996	1001	NM	5.3
12/01/2021 05:48	0.0	2.0	12.0	0	1	997	1001	NM	5.3
12/01/2021 06:48	0.0	2.1	12.0	0	1	997	1002	NM	5.3
12/01/2021 07:48	0.0	2.1	12.0	0	1	999	1003	NM	5.3
12/01/2021 08:48	0.0	2.2	11.9	0	1	1000	1003	NM	5.3
12/01/2021 09:48	0.0	2.2	11.9	0	1	1001	1003	NM	5.3
12/01/2021 10:48	0.0	2.3	11.9	0	1	1002	1002	NM	5.3

GGS Time Series Data

Experts in Continuous Monitoring

Project Ref:	GGS2463
Location:	School Street, Radcliffe
Borehole ref:	WS110
Instrument ID:	GC #00025/09/14 FD #030700013
Start Date:	21/12/2020 12:32
End Date:	12/01/2021 11:32

Days of monitoring:	22
Monitoring Frequency (mins):	60
Total samples taken:	528

Minimum, Maximum and Range Table

	CH_4	CO_2	O_2	H_2S	CO	Borehole Pressure	Atmospheric Pressure	Flow	Temperature
Minimum	0.0	0.0	11.6	0	0	958	958	-0.16	2.1
Maximum	0.0	3.1	20.6	0	0	1022	1022	0.09	10.8
Range	0.0	3.1	9.0	0	0	64	64	0.25	8.7

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
21/12/2020 12:32	0.0	0.3	20.6	0	0	989	989	-0.01	10.8
21/12/2020 13:32	0.0	0.5	20.2	0	0	988	989	-0.01	8.0
21/12/2020 14:32	0.0	0.5	20.0	0	0	988	988	-0.01	7.3
21/12/2020 15:32	0.0	0.5	19.9	0	0	988	988	-0.01	7.0
21/12/2020 16:32	0.0	0.8	19.8	0	0	988	988	-0.01	6.9
21/12/2020 17:32	0.0	0.8	19.8	0	0	988	988	-0.01	6.9
21/12/2020 18:32	0.0	0.8	19.8	0	0	988	988	-0.01	6.9
21/12/2020 19:32	0.0	0.8	19.8	0	0	988	989	-0.04	6.9
21/12/2020 20:32	0.0	0.8	19.8	0	0	989	989	-0.01	6.9
21/12/2020 21:32	0.0	1.1	19.8	0	0	989	989	-0.01	6.9
21/12/2020 22:32	0.0	0.8	19.8	0	0	990	990	-0.01	6.9
21/12/2020 23:32	0.0	1.1	19.8	0	0	991	991	-0.04	6.9
22/12/2020 00:32	0.0	1.1	19.8	0	0	992	992	-0.04	7.0
22/12/2020 01:32	0.0	1.1	19.8	0	0	994	993	-0.01	7.0
22/12/2020 02:32	0.0	1.1	19.8	0	0	995	995	-0.01	7.0
22/12/2020 03:32	0.0	1.1	19.8	0	0	996	996	-0.01	7.0
22/12/2020 04:32	0.0	1.1	19.7	0	0	997	997	-0.04	7.0
22/12/2020 05:32	0.0	1.1	19.8	0	0	998	998	-0.04	7.0
22/12/2020 06:32	0.0	1.1	19.8	0	0	999	999	-0.01	7.0
22/12/2020 07:32	0.0	1.1	19.7	0	0	1000	1000	0.09	6.9
22/12/2020 08:32	0.0	1.1	19.8	0	0	1001	1001	-0.04	6.9
22/12/2020 09:32	0.0	1.1	19.7	0	0	1001	1001	-0.01	6.8
22/12/2020 10:32	0.0	1.1	19.7	0	0	1002	1002	-0.01	6.8
22/12/2020 11:32	0.0	1.1	19.7	0	0	1002	1003	-0.01	6.7
22/12/2020 12:32	0.0	1.1	19.7	0	0	1002	1002	-0.01	6.6
22/12/2020 13:32	0.0	1.1	19.7	0	0	1002	1002	-0.04	6.6
22/12/2020 14:32	0.0	1.1	19.7	0	0	1002	1002	-0.01	6.6
22/12/2020 15:32	0.0	1.1	19.7	0	0	1002	1002	-0.01	6.6
22/12/2020 16:32	0.0	1.1	19.7	0	0	1002	1002	-0.01	6.6
22/12/2020 17:32	0.0	1.1	19.7	0	0	1002	1002	-0.04	6.6
22/12/2020 18:32	0.0	1.1	19.7	0	0	1001	1001	0.09	6.6
22/12/2020 19:32	0.0	1.1	19.7	0	0	1001	1001	-0.01	6.6
22/12/2020 20:32	0.0	1.1	19.7	0	0	1001	1001	-0.01	6.5
22/12/2020 21:32	0.0	1.1	19.7	0	0	1001	1001	-0.04	6.5
22/12/2020 22:32	0.0	1.1	19.7	0	0	1001	1001	-0.04	6.5
22/12/2020 23:32	0.0	1.1	19.7	0	0	1000	1000	-0.01	6.4
23/12/2020 00:32	0.0	1.1	19.6	0	0	999	999	0.09	6.4
23/12/2020 01:32	0.0	1.1	19.7	0	0	999	999	-0.01	6.4
23/12/2020 02:32	0.0	0.8	19.7	0	0	999	999	0.09	6.4
23/12/2020 03:32	0.0	0.8	19.6	0	0	998	998	-0.04	6.3
23/12/2020 04:32	0.0	0.8	19.6	0	0	998	997	-0.01	6.3
23/12/2020 05:32	0.0	0.8	19.7	0	0	997	997	0.09	6.3
23/12/2020 06:32	0.0	0.8	19.6	0	0	997	996	-0.01	6.3
23/12/2020 07:32	0.0	0.8	19.7	0	0	996	996	-0.04	6.3
23/12/2020 08:32	0.0	0.8	19.7	0	0	996	996	-0.01	6.3
23/12/2020 09:32	0.0	0.8	19.6	0	0	996	996	-0.01	6.2
23/12/2020 10:32	0.0	0.8	19.7	0	0	996	996	-0.01	6.2
23/12/2020 11:32	0.0	0.8	19.6	0	0	995	995	-0.01	6.2
23/12/2020 12:32	0.0	0.8	19.6	0	0	995	995	-0.04	6.2
23/12/2020 13:32	0.0	0.8	19.7	0	0	995	995	-0.01	6.2
23/12/2020 14:32	0.0	0.8	19.7	0	0	995	995	-0.01	6.2
23/12/2020 15:32	0.0	0.8	19.7	0	0	996	996	-0.16	6.2
23/12/2020 16:32	0.0	0.8	19.7	0	0	997	997	-0.04	6.2
23/12/2020 17:32	0.0	0.8	19.7	0	0	998	998	-0.01	6.2
23/12/2020 18:32	0.0	0.5	19.8	0	0	999	999	-0.01	6.2
23/12/2020 19:32	0.0	0.5	19.8	0	0	1001	1000	-0.01	6.2
23/12/2020 20:32	0.0	0.5	19.8	0	0	1002	1002	-0.01	6.2
23/12/2020 21:32	0.0	0.5	19.8	0	0	1003	1003	-0.01	6.2
23/12/2020 22:32	0.0	0.5	19.8	0	0	1004	1004	-0.01	6.2
23/12/2020 23:32	0.0	0.5	19.8	0	0	1005	1005	-0.01	6.2
24/12/2020 00:32	0.0	0.5	19.8	0	0	1006	1007	-0.04	6.2
24/12/2020 01:32	0.0	0.5	19.8	0	0	1007	1007	-0.01	6.2
24/12/2020 02:32	0.0	0.5	19.8	0	0	1008	1009	-0.04	6.2
24/12/2020 03:32	0.0	0.5	19.8	0	0	1009	1009	-0.01	6.2
24/12/2020 04:32	0.0	0.5	19.8	0	0	1010	1010	-0.04	6.1
24/12/2020 05:32	0.0	0.5	19.8	0	0	1011	1010	-0.04	6.1
24/12/2020 06:32	0.0	0.5	19.8	0	0	1011	1011	-0.01	6.0
24/12/2020 07:32	0.0	0.5	19.8	0	0	1012	1012	-0.01	5.9
24/12/2020 08:32	0.0	0.5	19.8	0	0	1013	1013	-0.04	5.9
24/12/2020 09:32	0.0	0.5	19.8	0	0	1014	1014	-0.01	5.8
24/12/2020 10:32	0.0	0.5	19.8	0	0	1015	1015	-0.04	5.8
24/12/2020 11:32	0.0	0.5	19.8	0	0	1015	1016	-0.04	5.7
24/12/2020 12:32	0.0	0.5	19.8	0	0	1016	1016	-0.01	5.6
24/12/2020 13:32	0.0	0.5	19.8	0	0	1017	1017	-0.01	5.6
24/12/2020 14:32	0.0	0.5	19.8	0	0	1017	1017	-0.01	5.6
24/12/2020 15:32	0.0	0.5	19.8	0	0	1019	1019	-0.01	5.6
24/12/2020 16:32	0.0	0.5	19.8	0	0	1019	1019	-0.04	5.5
24/12/2020 17:32	0.0	0.5	19.8	0	0	1019	1020	-0.01	5.5
24/12/2020 18:32	0.0	0.5	19.8	0	0	1020	1020	-0.01	5.5
24/12/2020 19:32	0.0	0.3	19.8	0	0	1021	1021	-0.04	5.4
24/12/2020 20:32	0.0	0.3	19.8	0	0	1021	1021	0.00	5.4
24/12/2020 21:32	0.0	0.3	19.8	0	0	1022	1022	-0.01	5.3
24/12/2020 22:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	5.3
24/12/2020 23:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	5.2
25/12/2020 00:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	5.1
25/12/2020 01:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	5.1
25/12/2020 02:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	5.0
25/12/2020 03:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	4.9
25/12/2020 04:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	4.9
25/12/2020 05:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	4.8
25/12/2020 06:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	4.8
25/12/2020 07:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	4.7
25/12/2020 08:32	0.0	0.3	19.7	0	0	1022	1022	-0.04	4.6
25/12/2020 09:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	4.6
25/12/2020 10:32	0.0	0.3	19.7	0	0	1022	1022	-0.01	4.5
25/12/2020 11:32	0.0	0.3	19.6	0	0	1022	1021	-0.01	4.4

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
25/12/2020 12:32	0.0	0.3	19.6	0	0	1021	1021	-0.04	4.4
25/12/2020 13:32	0.0	0.3	19.6	0	0	1020	1021	-0.01	4.3
25/12/2020 14:32	0.0	0.3	19.6	0	0	1020	1020	-0.01	4.3
25/12/2020 15:32	0.0	0.3	19.6	0	0	1019	1019	-0.01	4.3
25/12/2020 16:32	0.0	0.3	19.6	0	0	1018	1018	-0.01	4.3
25/12/2020 17:32	0.0	0.3	19.6	0	0	1017	1017	-0.04	4.3
25/12/2020 18:32	0.0	0.3	19.6	0	0	1017	1017	-0.01	4.2
25/12/2020 19:32	0.0	0.3	19.6	0	0	1016	1017	-0.01	4.2
25/12/2020 20:32	0.0	0.3	19.6	0	0	1015	1015	0.09	4.2
25/12/2020 21:32	0.0	0.3	19.6	0	0	1015	1015	-0.04	4.1
25/12/2020 22:32	0.0	0.3	19.6	0	0	1014	1014	-0.04	4.1
25/12/2020 23:32	0.0	0.3	19.6	0	0	1013	1013	-0.01	4.1
26/12/2020 00:32	0.0	0.3	19.6	0	0	1012	1012	-0.01	4.1
26/12/2020 01:32	0.0	0.3	19.6	0	0	1011	1011	-0.01	4.1
26/12/2020 02:32	0.0	0.3	19.6	0	0	1010	1010	-0.01	4.1
26/12/2020 03:32	0.0	0.3	19.5	0	0	1009	1009	0.09	4.1
26/12/2020 04:32	0.0	0.3	19.5	0	0	1008	1008	-0.01	4.1
26/12/2020 05:32	0.0	0.3	19.5	0	0	1007	1007	-0.01	4.1
26/12/2020 06:32	0.0	0.3	19.5	0	0	1007	1007	-0.01	4.1
26/12/2020 07:32	0.0	0.3	19.5	0	0	1006	1006	-0.01	4.1
26/12/2020 08:32	0.0	0.3	19.5	0	0	1005	1005	-0.01	4.2
26/12/2020 09:32	0.0	0.3	19.5	0	0	1004	1004	0.09	4.3
26/12/2020 10:32	0.0	0.3	19.5	0	0	1002	1003	-0.01	4.3
26/12/2020 11:32	0.0	0.3	19.5	0	0	1001	1001	-0.01	4.3
26/12/2020 12:32	0.0	0.3	19.4	0	0	998	999	-0.01	4.4
26/12/2020 13:32	0.0	0.3	19.4	0	0	997	996	-0.04	4.4
26/12/2020 14:32	0.0	0.3	19.4	0	0	994	994	-0.01	4.4
26/12/2020 15:32	0.0	0.3	19.4	0	0	992	992	-0.01	4.5
26/12/2020 16:32	0.0	0.3	19.4	0	0	990	990	-0.01	4.6
26/12/2020 17:32	0.0	0.3	19.3	0	0	988	988	-0.04	4.6
26/12/2020 18:32	0.0	0.3	19.3	0	0	984	985	0.09	4.7
26/12/2020 19:32	0.0	0.3	19.3	0	0	982	982	-0.04	4.8
26/12/2020 20:32	0.0	0.3	19.3	0	0	979	979	-0.08	4.8
26/12/2020 21:32	0.0	0.3	19.3	0	0	976	976	-0.08	4.8
26/12/2020 22:32	0.0	0.3	19.2	0	0	973	972	-0.04	4.8
26/12/2020 23:32	0.0	0.3	19.2	0	0	970	970	-0.01	4.9
27/12/2020 00:32	0.0	0.3	19.2	0	0	967	967	-0.01	4.9
27/12/2020 01:32	0.0	0.3	19.2	0	0	965	965	-0.01	4.9
27/12/2020 02:32	0.0	0.3	19.2	0	0	964	964	-0.01	4.9
27/12/2020 03:32	0.0	0.3	19.2	0	0	963	963	-0.01	5.0
27/12/2020 04:32	0.0	0.3	19.2	0	0	963	963	-0.04	5.0
27/12/2020 05:32	0.0	0.0	19.2	0	0	963	963	-0.04	5.1
27/12/2020 06:32	0.0	0.0	19.2	0	0	963	962	-0.01	5.1
27/12/2020 07:32	0.0	0.0	19.2	0	0	963	963	-0.01	5.1
27/12/2020 08:32	0.0	0.0	19.3	0	0	963	963	-0.01	5.1
27/12/2020 09:32	0.0	0.0	19.3	0	0	963	962	-0.01	5.1
27/12/2020 10:32	0.0	0.0	19.3	0	0	962	962	-0.01	5.1
27/12/2020 11:32	0.0	0.0	19.2	0	0	961	961	-0.01	5.1
27/12/2020 12:32	0.0	0.0	19.3	0	0	960	960	-0.01	5.0
27/12/2020 13:32	0.0	0.0	19.2	0	0	960	960	-0.01	5.0
27/12/2020 14:32	0.0	0.0	19.2	0	0	960	959	-0.01	5.0
27/12/2020 15:32	0.0	0.0	19.2	0	0	959	959	-0.01	5.0
27/12/2020 16:32	0.0	0.0	19.2	0	0	959	959	-0.01	5.0
27/12/2020 17:32	0.0	0.0	19.2	0	0	959	959	-0.01	5.0
27/12/2020 18:32	0.0	0.0	19.3	0	0	959	959	-0.01	5.0
27/12/2020 19:32	0.0	0.0	19.4	0	0	959	959	-0.01	5.0
27/12/2020 20:32	0.0	0.0	19.4	0	0	959	959	-0.01	5.0
27/12/2020 21:32	0.0	0.0	19.4	0	0	960	959	-0.01	4.9
27/12/2020 22:32	0.0	0.0	19.4	0	0	960	959	-0.01	4.9
27/12/2020 23:32	0.0	0.0	19.4	0	0	959	959	-0.04	4.9
28/12/2020 00:32	0.0	0.0	19.4	0	0	959	959	-0.01	4.9
28/12/2020 01:32	0.0	0.0	19.5	0	0	959	958	-0.01	4.9
28/12/2020 02:32	0.0	0.0	19.5	0	0	959	958	-0.01	4.8
28/12/2020 03:32	0.0	0.0	19.5	0	0	958	958	-0.01	4.8
28/12/2020 04:32	0.0	0.0	19.5	0	0	959	958	-0.01	4.8
28/12/2020 05:32	0.0	0.0	19.5	0	0	959	959	-0.01	4.7
28/12/2020 06:32	0.0	0.0	19.5	0	0	960	961	-0.01	4.7
28/12/2020 07:32	0.0	0.0	19.6	0	0	962	961	-0.01	4.6
28/12/2020 08:32	0.0	0.0	19.6	0	0	963	963	-0.04	4.6
28/12/2020 09:32	0.0	0.0	19.6	0	0	964	964	-0.01	4.6
28/12/2020 10:32	0.0	0.0	19.6	0	0	965	965	-0.01	4.6
28/12/2020 11:32	0.0	0.0	19.6	0	0	966	966	-0.04	4.5
28/12/2020 12:32	0.0	0.0	19.6	0	0	966	966	-0.01	4.5
28/12/2020 13:32	0.0	0.0	19.6	0	0	967	967	-0.01	4.5
28/12/2020 14:32	0.0	0.0	19.6	0	0	968	968	-0.01	4.5
28/12/2020 15:32	0.0	0.0	19.6	0	0	968	968	-0.01	4.4
28/12/2020 16:32	0.0	0.0	19.6	0	0	969	969	-0.04	4.5
28/12/2020 17:32	0.0	0.0	19.6	0	0	969	969	-0.01	4.4
28/12/2020 18:32	0.0	0.0	19.6	0	0	970	970	-0.01	4.4
28/12/2020 19:32	0.0	0.0	19.6	0	0	971	970	-0.04	4.4
28/12/2020 20:32	0.0	0.0	19.6	0	0	971	971	-0.01	4.4
28/12/2020 21:32	0.0	0.0	19.6	0	0	972	972	-0.04	4.4
28/12/2020 22:32	0.0	0.0	19.6	0	0	972	972	-0.01	4.4
28/12/2020 23:32	0.0	0.0	19.6	0	0	973	972	-0.01	4.4
29/12/2020 00:32	0.0	0.0	19.6	0	0	973	973	-0.01	4.4
29/12/2020 01:32	0.0	0.0	19.6	0	0	974	973	-0.01	4.4
29/12/2020 02:32	0.0	0.0	19.6	0	0	974	974	-0.04	4.3
29/12/2020 03:32	0.0	0.0	19.6	0	0	974	975	-0.01	4.3
29/12/2020 04:32	0.0	0.0	19.6	0	0	975	975	-0.04	4.3
29/12/2020 05:32	0.0	0.0	19.6	0	0	976	975	-0.01	4.3
29/12/2020 06:32	0.0	0.0	19.6	0	0	976	976	0.09	4.2
29/12/2020 07:32	0.0	0.3	19.6	0	0	977	977	-0.01	4.1
29/12/2020 08:32	0.0	0.3	19.6	0	0	978	978	0.09	4.1
29/12/2020 09:32	0.0	0.3	19.6	0	0	979	979	-0.01	4.1
29/12/2020 10:32	0.0	0.3	19.6	0	0	980	980	-0.01	4.1
29/12/2020 11:32	0.0	0.3	19.5	0	0	981	981	-0.01	4.1
29/12/2020 12:32	0.0	0.3	19.6	0	0	982	982	-0.01	4.0
29/12/2020 13:32	0.0	0.3	19.6	0	0	983	983	0.09	4.0
29/12/2020 14:32	0.0	0.3	19.6	0	0	984	984	-0.01	4.0
29/12/2020 15:32	0.0	0.3	19.5	0	0	985	985	-0.01	4.1
29/12/2020 16:32	0.0	0.3	19.6	0	0	986	986	-0.01	4.1
29/12/2020 17:32	0.0	0.3	19.6	0	0	987	986	-0.01	4.1
29/12/2020 18:32	0.0	0.3	19.5	0	0	987	987	-0.01	4.1
29/12/2020 19:32	0.0	0.3	19.6	0	0	988	987	-0.01	4.0
29/12/2020 20:32	0.0	0.3	19.5	0	0	988	988	-0.01	4.0
29/12/2020 21:32	0.0	0.3	19.5	0	0	988	988	-0.01	3.9
29/12/2020 22:32	0.0	0.5	19.5	0	0	988	989	-0.01	3.9
29/12/2020 23:32	0.0	0.5	19.5	0	0	989	989	-0.04	3.9
30/12/2020 00:32	0.0	0.5	19.5	0	0	989	989	-0.01	3.8
30/12/2020 01:32	0.0	0.5	19.5	0	0	989	989	-0.01	3.8
30/12/2020 02:32	0.0	0.5	19.5	0	0	990	989	-0.01	3.8
30/12/2020 03:32	0.0	0.5	19.5	0	0	990	989	-0.04	3.7
30/12/2020 04:32	0.0	0.5	19.5	0	0	990	990	-0.04	3.7
30/12/2020 05:32	0.0	0.5	19.5	0	0	990	990	-0.01	3.6

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
30/12/2020 06:32	0.0	0.5	19.5	0	0	990	990	-0.01	3.6
30/12/2020 07:32	0.0	0.8	19.5	0	0	991	990	-0.01	3.6
30/12/2020 08:32	0.0	0.5	19.5	0	0	991	991	-0.01	3.6
30/12/2020 09:32	0.0	0.8	19.5	0	0	991	991	-0.01	3.6
30/12/2020 10:32	0.0	0.8	19.5	0	0	991	992	-0.01	3.5
30/12/2020 11:32	0.0	0.8	19.5	0	0	991	991	-0.04	3.5
30/12/2020 12:32	0.0	0.8	19.5	0	0	991	991	-0.01	3.5
30/12/2020 13:32	0.0	0.8	19.5	0	0	991	992	-0.01	3.5
30/12/2020 14:32	0.0	1.0	19.5	0	0	991	992	-0.01	3.5
30/12/2020 15:32	0.0	1.1	19.4	0	0	992	992	0.09	3.5
30/12/2020 16:32	0.0	1.4	19.4	0	0	992	992	-0.01	3.5
30/12/2020 17:32	0.0	1.6	19.4	0	0	992	993	-0.01	3.5
30/12/2020 18:32	0.0	1.6	19.4	0	0	993	993	-0.01	3.5
30/12/2020 19:32	0.0	1.9	19.4	0	0	993	993	-0.01	3.4
30/12/2020 20:32	0.0	1.9	19.4	0	0	993	993	-0.01	3.4
30/12/2020 21:32	0.0	1.9	19.4	0	0	993	993	-0.04	3.4
30/12/2020 22:32	0.0	2.2	19.4	0	0	993	993	-0.01	3.4
30/12/2020 23:32	0.0	2.2	19.3	0	0	993	993	-0.01	3.4
31/12/2020 00:32	0.0	2.5	19.3	0	0	993	993	-0.04	3.4
31/12/2020 01:32	0.0	2.5	19.3	0	0	993	993	-0.01	3.4
31/12/2020 02:32	0.0	2.5	19.3	0	0	993	993	-0.01	3.4
31/12/2020 03:32	0.0	2.7	19.3	0	0	993	993	0.09	3.4
31/12/2020 04:32	0.0	2.7	19.3	0	0	993	993	-0.04	3.3
31/12/2020 05:32	0.0	2.7	19.3	0	0	993	993	-0.01	3.3
31/12/2020 06:32	0.0	2.7	19.3	0	0	993	993	-0.01	3.3
31/12/2020 07:32	0.0	3.0	19.3	0	0	993	993	-0.01	3.3
31/12/2020 08:32	0.0	3.0	19.3	0	0	994	994	-0.01	3.3
31/12/2020 09:32	0.0	3.1	19.3	0	0	994	994	-0.01	3.3
31/12/2020 10:32	0.0	2.7	19.3	0	0	994	994	-0.01	3.3
31/12/2020 11:32	0.0	3.1	19.3	0	0	994	994	-0.01	3.3
31/12/2020 12:32	0.0	3.1	19.3	0	0	994	994	-0.01	3.3
31/12/2020 13:32	0.0	2.7	19.3	0	0	994	994	-0.01	3.3
31/12/2020 14:32	0.0	2.7	19.3	0	0	995	994	-0.01	3.3
31/12/2020 15:32	0.0	3.1	19.3	0	0	995	995	-0.01	3.3
31/12/2020 16:32	0.0	3.1	19.3	0	0	996	996	-0.01	3.3
31/12/2020 17:32	0.0	2.7	19.3	0	0	996	996	-0.01	3.3
31/12/2020 18:32	0.0	3.0	19.3	0	0	997	996	-0.01	3.3
31/12/2020 19:32	0.0	2.7	19.3	0	0	997	997	-0.01	3.3
31/12/2020 20:32	0.0	3.1	19.3	0	0	998	998	-0.04	3.3
31/12/2020 21:32	0.0	2.7	19.3	0	0	998	998	-0.01	3.3
31/12/2020 22:32	0.0	2.7	19.3	0	0	998	999	0.09	3.3
31/12/2020 23:32	0.0	2.7	19.3	0	0	999	999	-0.01	3.3
01/01/2021 00:32	0.0	2.7	19.3	0	0	999	999	-0.01	3.3
01/01/2021 01:32	0.0	2.7	19.3	0	0	999	999	-0.01	3.3
01/01/2021 02:32	0.0	2.7	19.4	0	0	1000	1000	-0.04	3.3
01/01/2021 03:32	0.0	2.7	19.3	0	0	1000	1000	-0.01	3.3
01/01/2021 04:32	0.0	2.7	19.3	0	0	1000	1000	-0.01	3.2
01/01/2021 05:32	0.0	2.7	19.3	0	0	1000	1000	-0.04	3.2
01/01/2021 06:32	0.0	2.5	19.4	0	0	1001	1000	-0.01	3.2
01/01/2021 07:32	0.0	2.5	19.4	0	0	1001	1001	-0.04	3.2
01/01/2021 08:32	0.0	2.5	19.4	0	0	1002	1002	-0.01	3.2
01/01/2021 09:32	0.0	2.5	19.4	0	0	1002	1002	-0.04	3.2
01/01/2021 10:32	0.0	2.5	19.4	0	0	1002	1002	-0.01	3.1
01/01/2021 11:32	0.0	2.5	19.4	0	0	1002	1003	-0.04	3.1
01/01/2021 12:32	0.0	2.5	19.4	0	0	1002	1002	-0.01	3.1
01/01/2021 13:32	0.0	2.5	19.4	0	0	1002	1002	-0.04	3.1
01/01/2021 14:32	0.0	2.2	19.4	0	0	1003	1003	-0.01	3.2
01/01/2021 15:32	0.0	2.5	19.4	0	0	1003	1003	-0.01	3.2
01/01/2021 16:32	0.0	2.2	19.4	0	0	1004	1003	-0.04	3.3
01/01/2021 17:32	0.0	2.5	19.4	0	0	1004	1004	-0.01	3.3
01/01/2021 18:32	0.0	2.5	19.4	0	0	1004	1004	-0.01	3.3
01/01/2021 19:32	0.0	2.5	19.4	0	0	1005	1005	-0.01	3.3
01/01/2021 20:32	0.0	2.2	19.4	0	0	1005	1005	-0.01	3.3
01/01/2021 21:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.3
01/01/2021 22:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.3
01/01/2021 23:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.2
02/01/2021 00:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.2
02/01/2021 01:32	0.0	2.2	19.4	0	0	1007	1007	-0.01	3.1
02/01/2021 02:32	0.0	2.2	19.4	0	0	1007	1007	0.09	3.1
02/01/2021 03:32	0.0	2.2	19.4	0	0	1006	1007	-0.01	3.1
02/01/2021 04:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.1
02/01/2021 05:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	3.0
02/01/2021 06:32	0.0	2.2	19.4	0	0	1006	1006	0.09	3.0
02/01/2021 07:32	0.0	2.2	19.4	0	0	1006	1006	-0.04	2.9
02/01/2021 08:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.9
02/01/2021 09:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.9
02/01/2021 10:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.8
02/01/2021 11:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.8
02/01/2021 12:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.8
02/01/2021 13:32	0.0	2.2	19.4	0	0	1006	1006	-0.01	2.8
02/01/2021 14:32	0.0	2.2	19.4	0	0	1006	1006	-0.04	2.8
02/01/2021 15:32	0.0	1.9	19.4	0	0	1006	1006	-0.01	2.8
02/01/2021 16:32	0.0	1.9	19.4	0	0	1007	1007	-0.01	2.8
02/01/2021 17:32	0.0	1.9	19.4	0	0	1007	1007	-0.04	2.8
02/01/2021 18:32	0.0	1.9	19.4	0	0	1007	1007	-0.01	2.8
02/01/2021 19:32	0.0	1.9	19.4	0	0	1008	1008	-0.01	2.8
02/01/2021 20:32	0.0	1.9	19.4	0	0	1008	1008	-0.01	2.8
02/01/2021 21:32	0.0	1.9	19.4	0	0	1008	1008	-0.01	2.7
02/01/2021 22:32	0.0	1.9	19.4	0	0	1008	1008	-0.01	2.7
02/01/2021 23:32	0.0	1.9	19.4	0	0	1008	1009	-0.01	2.7
03/01/2021 00:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.7
03/01/2021 01:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.7
03/01/2021 02:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.6
03/01/2021 03:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.6
03/01/2021 04:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.6
03/01/2021 05:32	0.0	1.9	19.4	0	0	1009	1009	0.09	2.6
03/01/2021 06:32	0.0	1.9	19.4	0	0	1009	1009	-0.01	2.6
03/01/2021 07:32	0.0	1.6	19.4	0	0	1009	1009	-0.01	2.6
03/01/2021 08:32	0.0	1.6	19.4	0	0	1010	1010	-0.01	2.6
03/01/2021 09:32	0.0	1.6	19.5	0	0	1010	1010	-0.01	2.6
03/01/2021 10:32	0.0	1.6	19.5	0	0	1011	1011	-0.01	2.6
03/01/2021 11:32	0.0	1.6	19.4	0	0	1011	1010	-0.01	2.6
03/01/2021 12:32	0.0	1.6	19.4	0	0	1011	1010	0.09	2.6
03/01/2021 13:32	0.0	1.6	19.4	0	0	1011	1010	-0.01	2.6
03/01/2021 14:32	0.0	1.6	19.4	0	0	1011	1011	-0.01	2.7
03/01/2021 15:32	0.0	1.6	19.5	0	0	1011	1011	-0.04	2.7
03/01/2021 16:32	0.0	1.6	19.5	0	0	1011	1011	-0.01	2.8
03/01/2021 17:32	0.0	1.6	19.5	0	0	1012	1011	-0.01	2.8
03/01/2021 18:32	0.0	1.6	19.5	0	0	1012	1012	-0.01	2.8
03/01/2021 19:32	0.0	1.6	19.5	0	0	1013	1013	-0.01	2.8
03/01/2021 20:32	0.0	1.6	19.5	0	0	1013	1013	-0.01	2.8
03/01/2021 21:32	0.0	1.6	19.5	0	0	1013	1013	-0.01	2.8
03/01/2021 22:32	0.0	1.6	19.5	0	0	1014	1014	-0.01	2.8
03/01/2021 23:32	0.0	1.6	19.5	0	0	1014	1014	-0.01	2.8

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
04/01/2021 00:32	0.0	1.4	19.5	0	0	1014	1014	-0.01	2.7
04/01/2021 01:32	0.0	1.4	19.5	0	0	1014	1014	-0.01	2.7
04/01/2021 02:32	0.0	1.4	19.5	0	0	1014	1014	-0.04	2.7
04/01/2021 03:32	0.0	1.4	19.5	0	0	1014	1014	-0.01	2.7
04/01/2021 04:32	0.0	1.4	19.5	0	0	1014	1014	-0.01	2.6
04/01/2021 05:32	0.0	1.4	19.5	0	0	1014	1014	-0.01	2.6
04/01/2021 06:32	0.0	1.1	19.5	0	0	1014	1014	-0.01	2.6
04/01/2021 07:32	0.0	1.1	19.5	0	0	1015	1014	-0.01	2.6
04/01/2021 08:32	0.0	1.1	19.5	0	0	1015	1015	-0.01	2.6
04/01/2021 09:32	0.0	1.1	19.5	0	0	1015	1015	-0.01	2.6
04/01/2021 10:32	0.0	1.1	19.5	0	0	1015	1015	-0.01	2.6
04/01/2021 11:32	0.0	1.1	19.5	0	0	1015	1015	-0.01	2.6
04/01/2021 12:32	0.0	1.1	19.5	0	0	1015	1015	-0.01	2.6
04/01/2021 13:32	0.0	1.1	19.5	0	0	1014	1014	-0.01	2.6
04/01/2021 14:32	0.0	0.8	19.5	0	0	1015	1014	-0.01	2.6
04/01/2021 15:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.6
04/01/2021 16:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.7
04/01/2021 17:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.7
04/01/2021 18:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.8
04/01/2021 19:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.8
04/01/2021 20:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.8
04/01/2021 21:32	0.0	0.8	19.6	0	0	1015	1015	-0.01	2.8
04/01/2021 22:32	0.0	0.5	19.6	0	0	1015	1015	-0.01	2.8
04/01/2021 23:32	0.0	0.5	19.6	0	0	1015	1015	-0.01	2.8
05/01/2021 00:32	0.0	0.5	19.6	0	0	1015	1015	-0.01	2.8
05/01/2021 01:32	0.0	0.5	19.6	0	0	1015	1015	-0.04	2.8
05/01/2021 02:32	0.0	0.5	19.6	0	0	1015	1014	-0.04	2.8
05/01/2021 03:32	0.0	0.5	19.6	0	0	1014	1014	-0.01	2.8
05/01/2021 04:32	0.0	0.5	19.6	0	0	1015	1014	-0.01	2.8
05/01/2021 05:32	0.0	0.5	19.6	0	0	1015	1014	-0.01	2.8
05/01/2021 06:32	0.0	0.5	19.6	0	0	1015	1014	-0.04	2.8
05/01/2021 07:32	0.0	0.5	19.4	0	0	1015	1014	-0.01	2.8
05/01/2021 08:32	0.0	0.5	19.4	0	0	1015	1015	-0.01	2.7
05/01/2021 09:32	0.0	0.5	19.4	0	0	1015	1015	-0.01	2.7
05/01/2021 10:32	0.0	0.8	19.4	0	0	1015	1015	-0.01	2.7
05/01/2021 11:32	0.0	0.8	19.4	0	0	1015	1015	-0.01	2.7
05/01/2021 12:32	0.0	0.8	19.4	0	0	1014	1014	-0.01	2.7
05/01/2021 13:32	0.0	0.5	19.4	0	0	1014	1014	-0.04	2.8
05/01/2021 14:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.8
05/01/2021 15:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.8
05/01/2021 16:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.9
05/01/2021 17:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.9
05/01/2021 18:32	0.0	0.8	19.5	0	0	1015	1014	-0.01	2.9
05/01/2021 19:32	0.0	0.8	19.5	0	0	1015	1015	-0.01	2.9
05/01/2021 20:32	0.0	0.8	19.5	0	0	1015	1014	-0.04	2.9
05/01/2021 21:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.9
05/01/2021 22:32	0.0	0.8	19.5	0	0	1014	1014	-0.04	2.9
05/01/2021 23:32	0.0	0.8	19.5	0	0	1014	1014	-0.01	2.9
06/01/2021 00:32	0.0	0.8	19.5	0	0	1014	1014	-0.04	2.9
06/01/2021 01:32	0.0	0.8	19.5	0	0	1013	1014	-0.01	2.9
06/01/2021 02:32	0.0	0.8	19.5	0	0	1013	1014	-0.04	2.9
06/01/2021 03:32	0.0	0.5	19.5	0	0	1013	1013	-0.01	2.8
06/01/2021 04:32	0.0	0.5	19.5	0	0	1013	1013	-0.01	2.8
06/01/2021 05:32	0.0	0.5	19.5	0	0	1012	1012	-0.04	2.8
06/01/2021 06:32	0.0	0.5	19.5	0	0	1012	1012	-0.01	2.8
06/01/2021 07:32	0.0	0.5	19.5	0	0	1012	1013	-0.04	2.8
06/01/2021 08:32	0.0	0.5	19.5	0	0	1013	1013	-0.01	2.8
06/01/2021 09:32	0.0	0.5	19.5	0	0	1013	1013	-0.01	2.7
06/01/2021 10:32	0.0	0.5	19.5	0	0	1013	1013	-0.01	2.7
06/01/2021 11:32	0.0	0.5	19.5	0	0	1012	1012	-0.01	2.7
06/01/2021 12:32	0.0	0.5	19.4	0	0	1011	1011	-0.01	2.7
06/01/2021 13:32	0.0	0.5	19.4	0	0	1011	1011	-0.01	2.7
06/01/2021 14:32	0.0	0.5	19.4	0	0	1011	1011	-0.01	2.7
06/01/2021 15:32	0.0	0.5	19.5	0	0	1011	1011	-0.04	2.8
06/01/2021 16:32	0.0	0.5	19.5	0	0	1011	1011	-0.01	2.8
06/01/2021 17:32	0.0	0.5	19.5	0	0	1011	1011	-0.04	2.8
06/01/2021 18:32	0.0	0.5	19.5	0	0	1011	1011	-0.01	2.8
06/01/2021 19:32	0.0	0.5	19.5	0	0	1011	1011	-0.01	2.8
06/01/2021 20:32	0.0	0.5	19.5	0	0	1011	1011	-0.01	2.7
06/01/2021 21:32	0.0	0.5	19.5	0	0	1011	1010	-0.01	2.7
06/01/2021 22:32	0.0	0.5	19.5	0	0	1010	1010	-0.01	2.6
06/01/2021 23:32	0.0	0.5	19.5	0	0	1010	1010	-0.01	2.6
07/01/2021 00:32	0.0	0.5	19.4	0	0	1010	1010	-0.01	2.6
07/01/2021 01:32	0.0	0.5	19.4	0	0	1009	1009	-0.01	2.5
07/01/2021 02:32	0.0	0.5	19.4	0	0	1009	1009	-0.01	2.5
07/01/2021 03:32	0.0	0.3	19.4	0	0	1009	1009	0.09	2.4
07/01/2021 04:32	0.0	0.5	19.4	0	0	1008	1008	-0.04	2.4
07/01/2021 05:32	0.0	0.5	19.4	0	0	1008	1008	-0.01	2.4
07/01/2021 06:32	0.0	0.5	19.4	0	0	1008	1008	-0.01	2.3
07/01/2021 07:32	0.0	0.3	19.4	0	0	1008	1008	-0.04	2.3
07/01/2021 08:32	0.0	0.3	19.4	0	0	1008	1008	-0.01	2.3
07/01/2021 09:32	0.0	0.5	19.4	0	0	1008	1008	-0.04	2.3
07/01/2021 10:32	0.0	0.3	19.3	0	0	1008	1008	-0.01	2.3
07/01/2021 11:32	0.0	0.5	19.3	0	0	1007	1007	-0.01	2.3
07/01/2021 12:32	0.0	0.5	19.3	0	0	1007	1007	-0.01	2.2
07/01/2021 13:32	0.0	0.3	19.3	0	0	1006	1006	-0.01	2.2
07/01/2021 14:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 15:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 16:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 17:32	0.0	0.5	19.1	0	0	1006	1006	-0.04	2.2
07/01/2021 18:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 19:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 20:32	0.0	0.3	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 21:32	0.0	0.3	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 22:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
07/01/2021 23:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.2
08/01/2021 00:32	0.0	0.5	19.2	0	0	1005	1006	-0.01	2.2
08/01/2021 01:32	0.0	0.5	19.2	0	0	1005	1005	-0.01	2.1
08/01/2021 02:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.1
08/01/2021 03:32	0.0	0.5	19.2	0	0	1005	1006	-0.04	2.1
08/01/2021 04:32	0.0	0.5	19.2	0	0	1005	1005	-0.01	2.1
08/01/2021 05:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.1
08/01/2021 06:32	0.0	0.5	19.2	0	0	1006	1006	-0.01	2.1
08/01/2021 07:32	0.0	0.5	19.1	0	0	1006	1006	-0.01	2.1
08/01/2021 08:32	0.0	0.5	19.1	0	0	1007	1007	-0.04	2.1
08/01/2021 09:32	0.0	0.5	19.2	0	0	1008	1007	-0.01	2.1
08/01/2021 10:32	0.0	0.5	19.2	0	0	1008	1008	-0.01	2.1
08/01/2021 11:32	0.0	0.8	19.2	0	0	1008	1008	-0.01	2.1
08/01/2021 12:32	0.0	0.8	19.2	0	0	1008	1008	-0.04	2.2
08/01/2021 13:32	0.0	0.8	19.2	0	0	1008	1008	-0.01	2.2
08/01/2021 14:32	0.0	0.8	19.2	0	0	1009	1009	-0.04	2.2
08/01/2021 15:32	0.0	0.8	19.3	0	0	1010	1010	-0.01	2.2
08/01/2021 16:32	0.0	0.8	19.3	0	0	1010	1010	-0.01	2.3
08/01/2021 17:32	0.0	0.8	19.3	0	0	1011	1011	-0.01	2.3

Date and Time	CH_4 % v/v	CO_2 % v/v	O_2 % v/v	H_2S ppm/v	CO ppm/v	Borehole Pressure mbar	Atmospheric Pressure mbar	Flow ltr/hr	Temperature °C
08/01/2021 18:32	0.0	0.8	19.3	0	0	1011	1011	0.09	2.3
08/01/2021 19:32	0.0	0.8	19.3	0	0	1012	1012	-0.01	2.3
08/01/2021 20:32	0.0	0.8	19.3	0	0	1012	1012	-0.01	2.3
08/01/2021 21:32	0.0	1.1	19.3	0	0	1013	1013	-0.04	2.3
08/01/2021 22:32	0.0	1.0	19.3	0	0	1013	1013	-0.01	2.3
08/01/2021 23:32	0.0	0.8	19.3	0	0	1013	1013	-0.01	2.3
09/01/2021 00:32	0.0	1.1	19.3	0	0	1014	1014	-0.04	2.3
09/01/2021 01:32	0.0	1.1	19.3	0	0	1014	1014	-0.01	2.3
09/01/2021 02:32	0.0	1.1	19.3	0	0	1014	1014	-0.01	2.3
09/01/2021 03:32	0.0	1.1	19.3	0	0	1015	1014	-0.01	2.3
09/01/2021 04:32	0.0	1.1	19.3	0	0	1015	1015	-0.01	2.3
09/01/2021 05:32	0.0	1.1	19.3	0	0	1015	1015	-0.01	2.3
09/01/2021 06:32	0.0	1.1	19.3	0	0	1015	1015	0.09	2.3
09/01/2021 07:32	0.0	1.1	19.3	0	0	1015	1015	-0.01	2.3
09/01/2021 08:32	0.0	1.4	19.3	0	0	1016	1016	-0.04	2.3
09/01/2021 09:32	0.0	1.4	19.3	0	0	1016	1016	-0.04	2.3
09/01/2021 10:32	0.0	1.1	19.3	0	0	1016	1016	-0.01	2.3
09/01/2021 11:32	0.0	1.4	19.3	0	0	1016	1016	-0.01	2.3
09/01/2021 12:32	0.0	1.4	19.2	0	0	1015	1016	-0.01	2.3
09/01/2021 13:32	0.0	1.1	19.2	0	0	1015	1015	-0.01	2.3
09/01/2021 14:32	0.0	1.4	19.2	0	0	1015	1015	-0.01	2.3
09/01/2021 15:32	0.0	1.4	19.2	0	0	1015	1015	-0.01	2.3
09/01/2021 16:32	0.0	1.4	19.2	0	0	1015	1015	-0.01	2.3
09/01/2021 17:32	0.0	1.4	19.2	0	0	1015	1015	-0.01	2.3
09/01/2021 18:32	0.0	1.4	19.1	0	0	1015	1015	-0.01	2.3
09/01/2021 19:32	0.0	1.4	19.1	0	0	1015	1015	-0.01	2.3
09/01/2021 20:32	0.0	1.4	19.1	0	0	1015	1015	-0.04	2.3
09/01/2021 21:32	0.0	1.4	19.1	0	0	1015	1015	-0.01	2.3
09/01/2021 22:32	0.0	1.4	19.1	0	0	1015	1015	-0.04	2.3
09/01/2021 23:32	0.0	1.4	19.1	0	0	1015	1015	-0.01	2.3
10/01/2021 00:32	0.0	1.4	19.1	0	0	1015	1015	-0.04	2.3
10/01/2021 01:32	0.0	1.4	19.1	0	0	1015	1014	-0.01	2.3
10/01/2021 02:32	0.0	1.4	19.1	0	0	1015	1015	-0.01	2.3
10/01/2021 03:32	0.0	1.4	19.1	0	0	1015	1014	-0.04	2.3
10/01/2021 04:32	0.0	1.4	19.0	0	0	1014	1014	-0.01	2.3
10/01/2021 05:32	0.0	1.4	19.0	0	0	1014	1014	-0.01	2.3
10/01/2021 06:32	0.0	1.4	19.0	0	0	1014	1014	-0.01	2.3
10/01/2021 07:32	0.0	1.4	18.9	0	0	1014	1014	-0.01	2.3
10/01/2021 08:32	0.0	1.4	18.9	0	0	1014	1014	-0.04	2.3
10/01/2021 09:32	0.0	1.0	18.9	0	0	1014	1014	-0.01	2.3
10/01/2021 10:32	0.0	1.4	18.7	0	0	1014	1014	-0.01	2.3
10/01/2021 11:32	0.0	1.1	18.5	0	0	1014	1014	-0.01	2.3
10/01/2021 12:32	0.0	1.0	18.2	0	0	1013	1013	-0.04	2.3
10/01/2021 13:32	0.0	1.1	18.0	0	0	1012	1012	-0.01	2.3
10/01/2021 14:32	0.0	1.0	17.7	0	0	1012	1012	-0.01	2.4
10/01/2021 15:32	0.0	0.8	17.5	0	0	1012	1012	-0.01	2.4
10/01/2021 16:32	0.0	0.8	17.3	0	0	1011	1011	-0.01	2.4
10/01/2021 17:32	0.0	1.1	17.1	0	0	1011	1011	-0.01	2.4
10/01/2021 18:32	0.0	0.8	16.9	0	0	1011	1011	-0.01	2.5
10/01/2021 19:32	0.0	0.8	16.7	0	0	1011	1010	-0.01	2.6
10/01/2021 20:32	0.0	1.1	16.6	0	0	1010	1010	-0.01	2.6
10/01/2021 21:32	0.0	1.1	16.5	0	0	1010	1010	-0.01	2.6
10/01/2021 22:32	0.0	1.1	16.4	0	0	1010	1010	-0.04	2.7
10/01/2021 23:32	0.0	0.8	16.3	0	0	1009	1009	-0.01	2.7
11/01/2021 00:32	0.0	0.8	16.2	0	0	1008	1008	-0.01	2.8
11/01/2021 01:32	0.0	0.8	16.1	0	0	1008	1008	-0.01	2.8
11/01/2021 02:32	0.0	0.8	16.0	0	0	1007	1007	-0.01	2.8
11/01/2021 03:32	0.0	0.8	15.9	0	0	1007	1007	0.09	2.9
11/01/2021 04:32	0.0	0.8	15.8	0	0	1006	1006	-0.01	2.9
11/01/2021 05:32	0.0	0.8	15.7	0	0	1005	1005	-0.01	2.9
11/01/2021 06:32	0.0	0.8	15.6	0	0	1005	1005	-0.01	3.0
11/01/2021 07:32	0.0	0.8	15.5	0	0	1004	1004	-0.04	3.0
11/01/2021 08:32	0.0	0.8	15.4	0	0	1004	1004	-0.01	3.1
11/01/2021 09:32	0.0	0.8	15.4	0	0	1004	1004	-0.01	3.1
11/01/2021 10:32	0.0	0.8	15.4	0	0	1004	1003	-0.04	3.1
11/01/2021 11:32	0.0	0.8	15.3	0	0	1002	1003	-0.01	3.2
11/01/2021 12:32	0.0	0.8	15.3	0	0	1002	1002	-0.01	3.2
11/01/2021 13:32	0.0	0.8	15.1	0	0	1001	1001	-0.01	3.3
11/01/2021 14:32	0.0	0.8	15.0	0	0	1000	1000	-0.01	3.3
11/01/2021 15:32	0.0	0.8	14.8	0	0	999	999	-0.01	3.3
11/01/2021 16:32	0.0	0.8	14.6	0	0	999	999	-0.01	3.4
11/01/2021 17:32	0.0	0.8	14.3	0	0	998	998	-0.01	3.4
11/01/2021 18:32	0.0	0.8	14.1	0	0	998	998	-0.01	3.5
11/01/2021 19:32	0.0	0.8	13.8	0	0	998	997	-0.01	3.6
11/01/2021 20:32	0.0	0.8	13.5	0	0	997	997	-0.01	3.6
11/01/2021 21:32	0.0	0.5	13.2	0	0	997	997	-0.01	3.7
11/01/2021 22:32	0.0	0.3	13.0	0	0	996	996	0.09	3.8
11/01/2021 23:32	0.0	0.3	12.7	0	0	996	996	-0.04	3.8
12/01/2021 00:32	0.0	0.3	12.4	0	0	996	996	-0.01	3.9
12/01/2021 01:32	0.0	0.3	12.2	0	0	996	996	-0.01	3.9
12/01/2021 02:32	0.0	0.0	12.0	0	0	997	997	-0.04	4.0
12/01/2021 03:32	0.0	0.0	11.7	0	0	997	997	-0.01	4.1
12/01/2021 04:32	0.0	0.0	11.6	0	0	998	998	0.09	4.1
12/01/2021 05:32	0.0	0.0	11.7	0	0	998	998	-0.01	4.1
12/01/2021 06:32	0.0	0.0	11.8	0	0	999	1000	-0.01	4.2
12/01/2021 07:32	0.0	0.0	12.0	0	0	1001	1001	-0.01	4.2
12/01/2021 08:32	0.0	0.0	12.2	0	0	1002	1002	-0.01	4.3
12/01/2021 09:32	0.0	0.0	12.4	0	0	1003	1003	-0.01	4.3
12/01/2021 10:32	0.0	0.0	12.6	0	0	1004	1004	-0.01	4.3
12/01/2021 11:32	0.0	0.0	18.1	0	0	1005	1005	-0.01	4.3

Appendix E

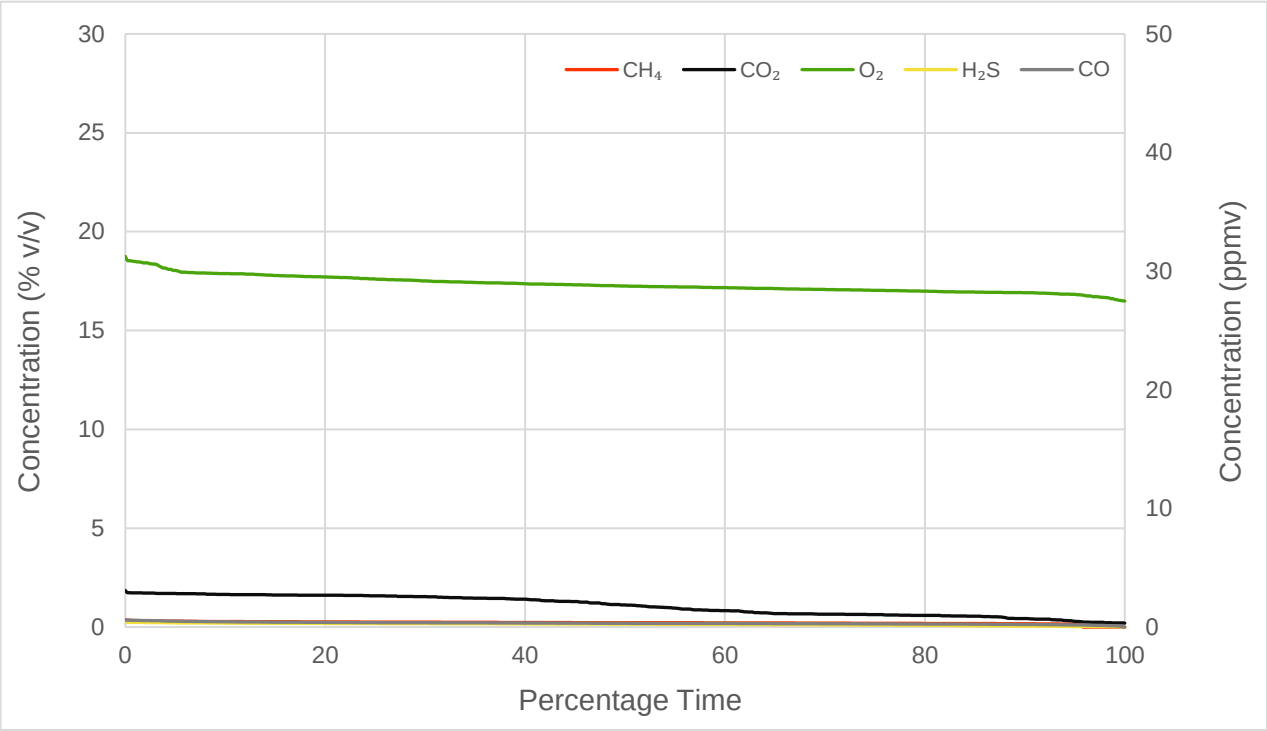
Concentration Duration Graphs

For: LK Group
Ref No.: GGS2463DP01
Date: 25/01/2021

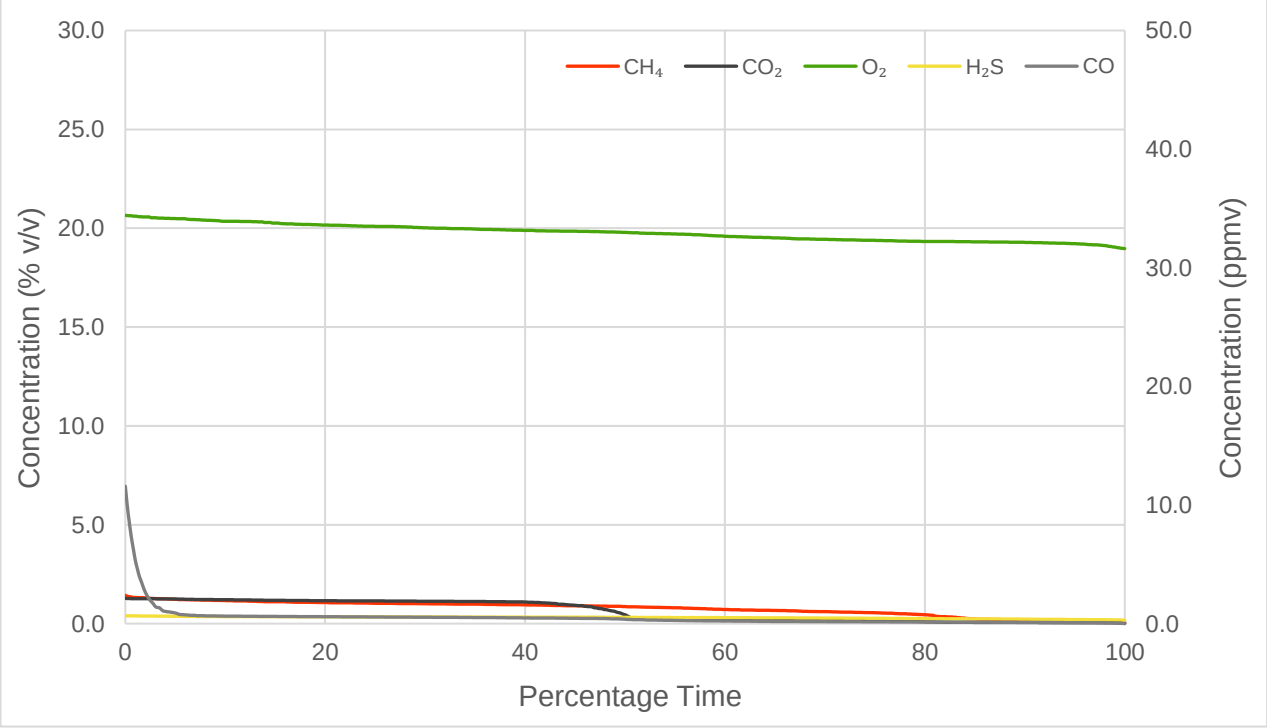
Experts in Continuous Monitoring

Experts in Continuous Monitoring

Concentration Duration Graph, WS101A

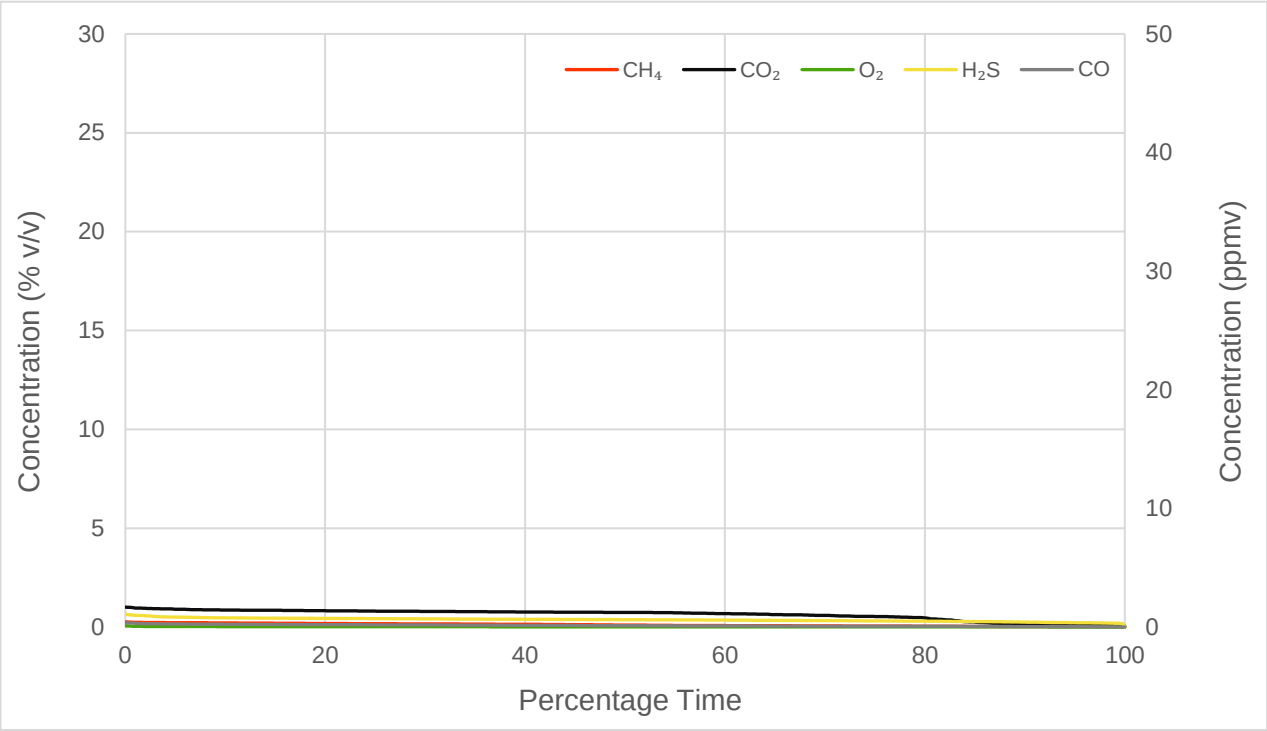


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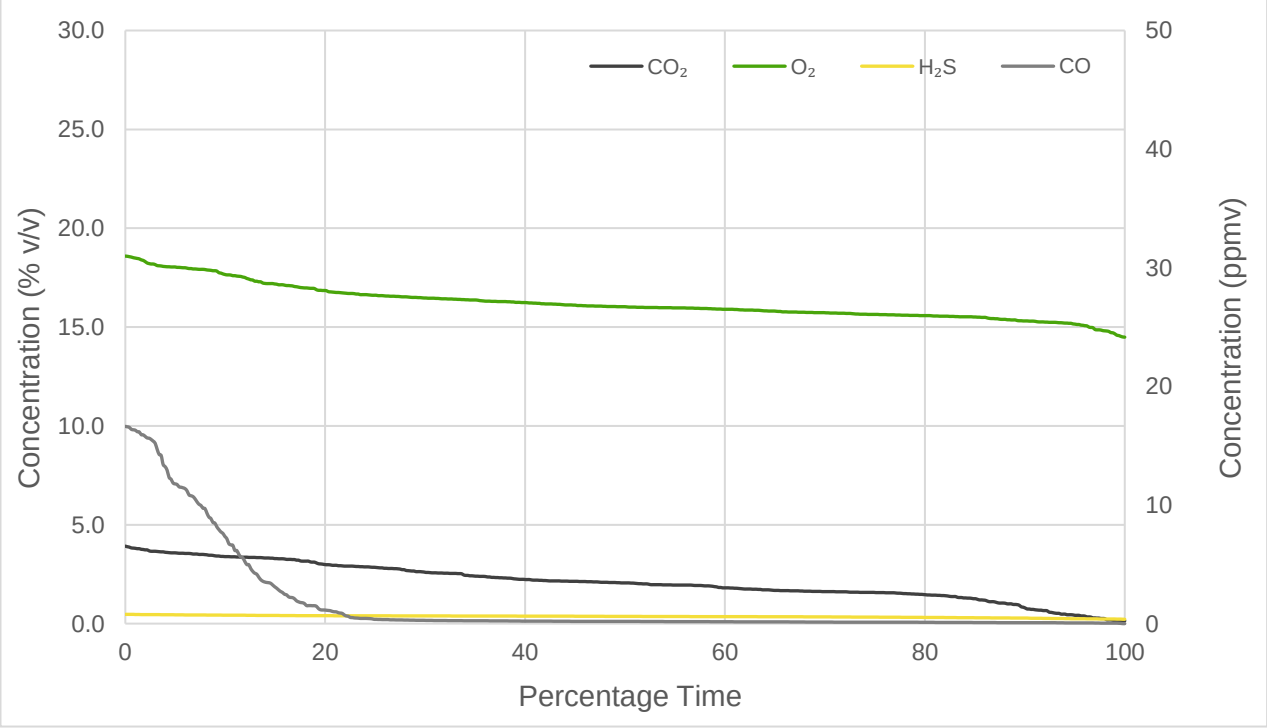


ggs
Experts in Continuous Monitoring

Concentration Duration Graph, WS103

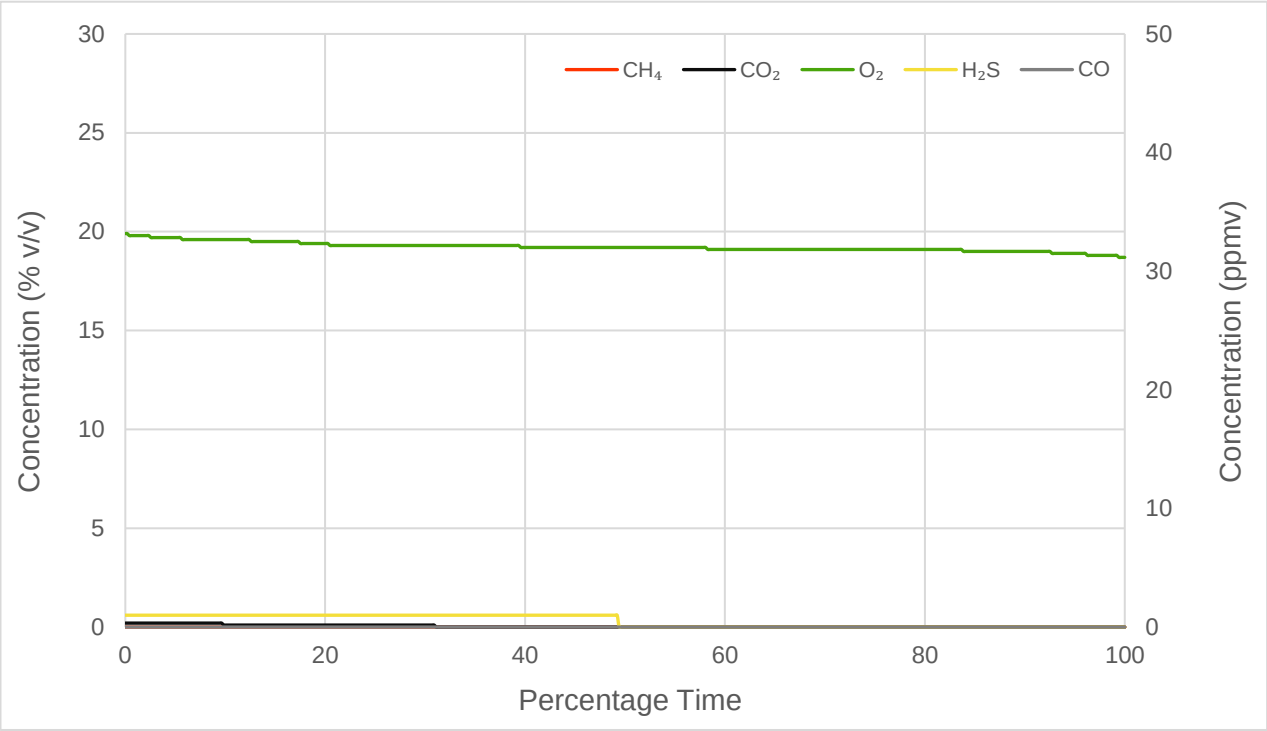


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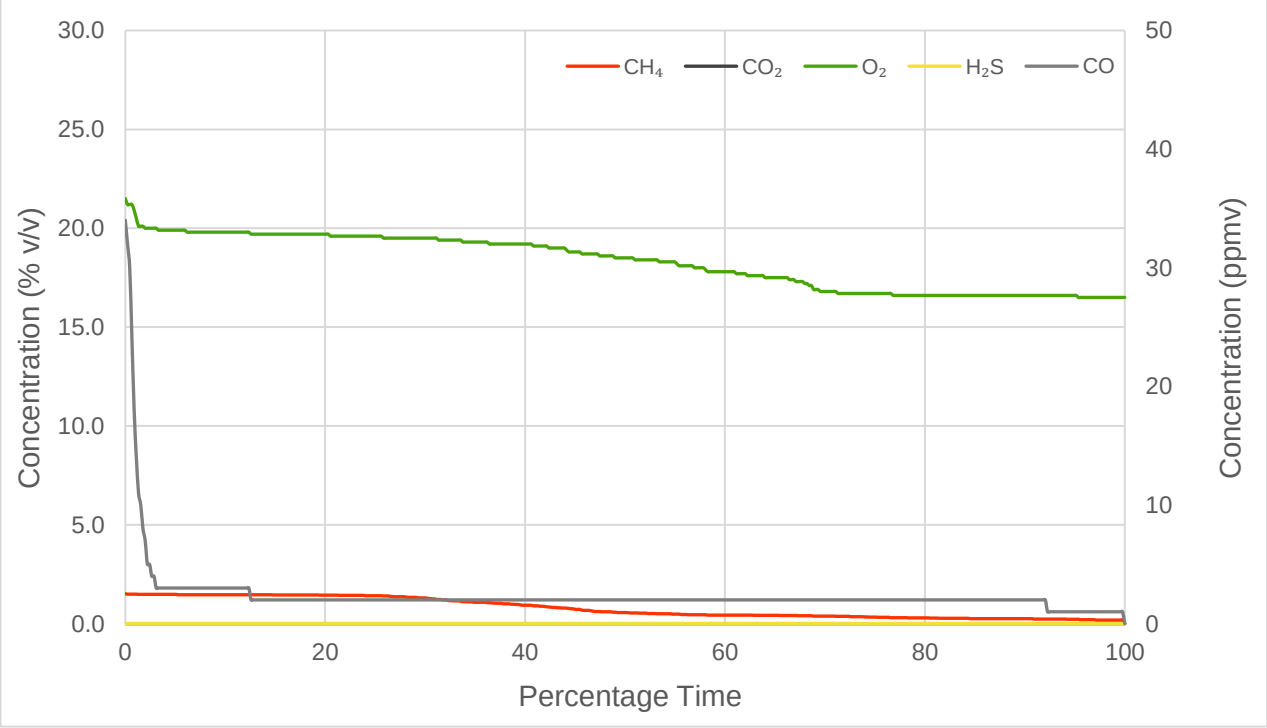


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Concentration Duration Graph, WS105

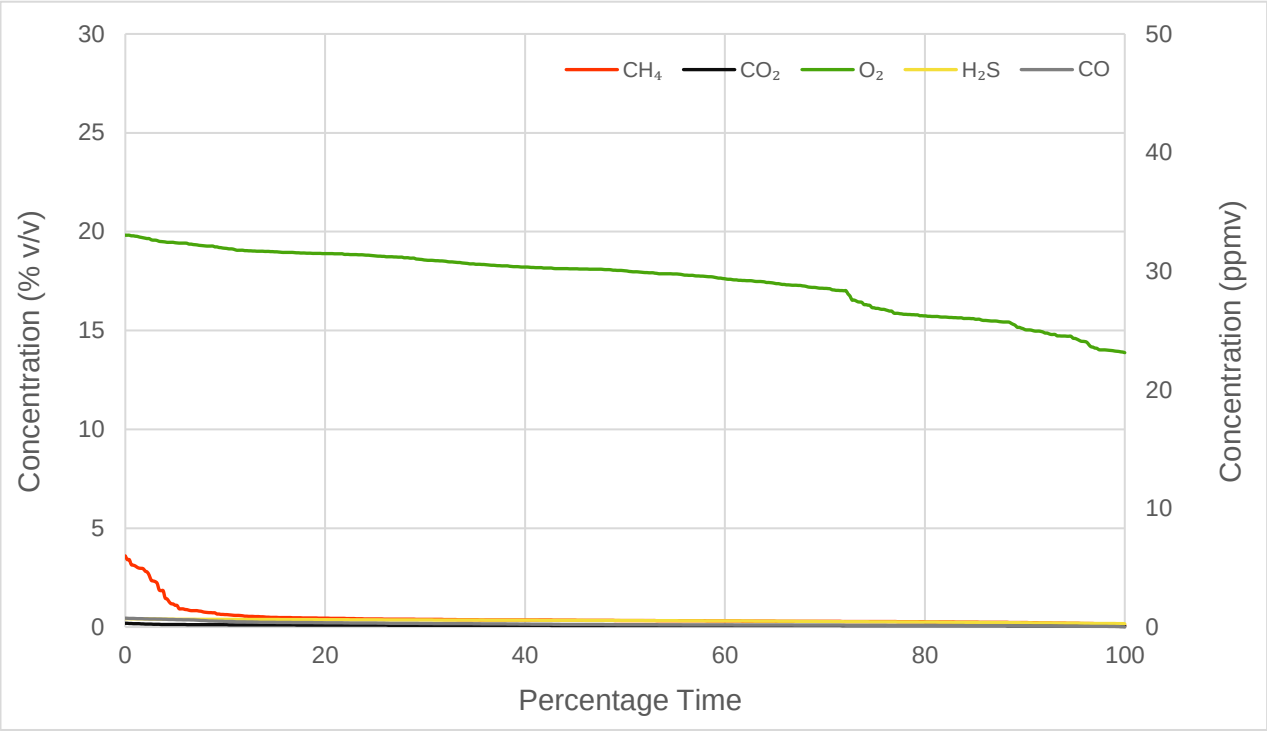


Concentration Duration Graph, WS106

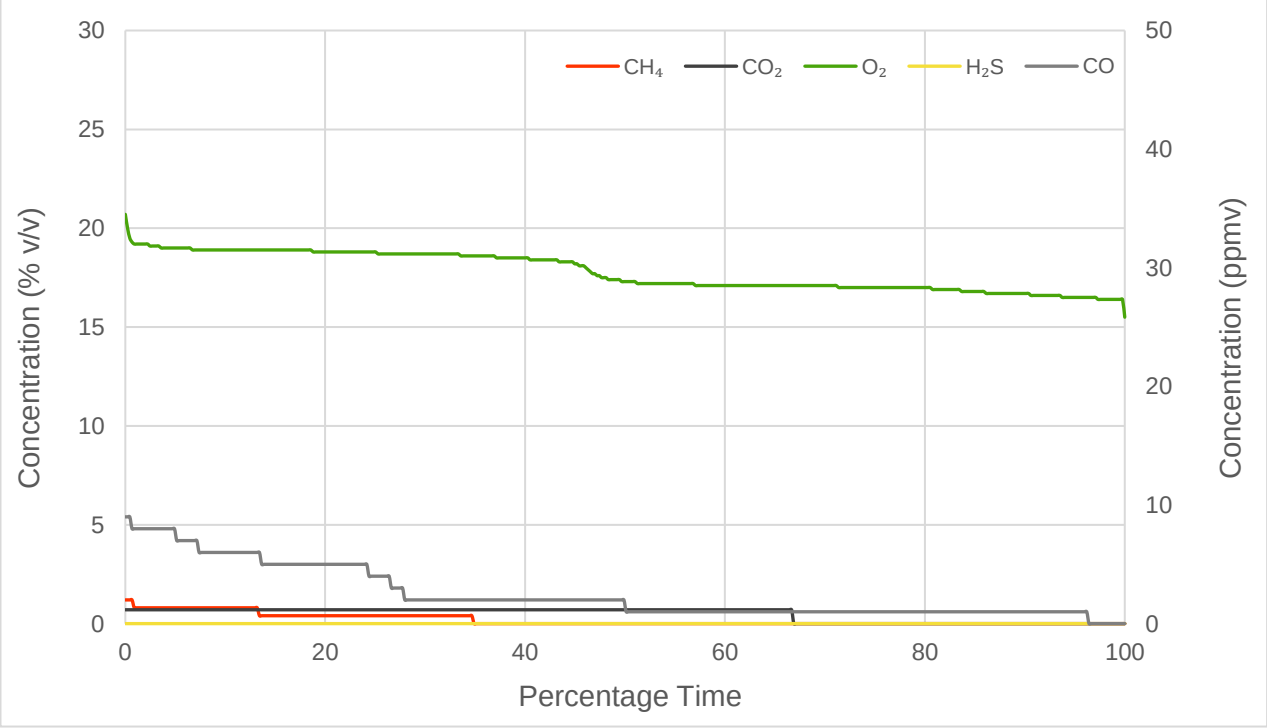


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Concentration Duration Graph, WS107A

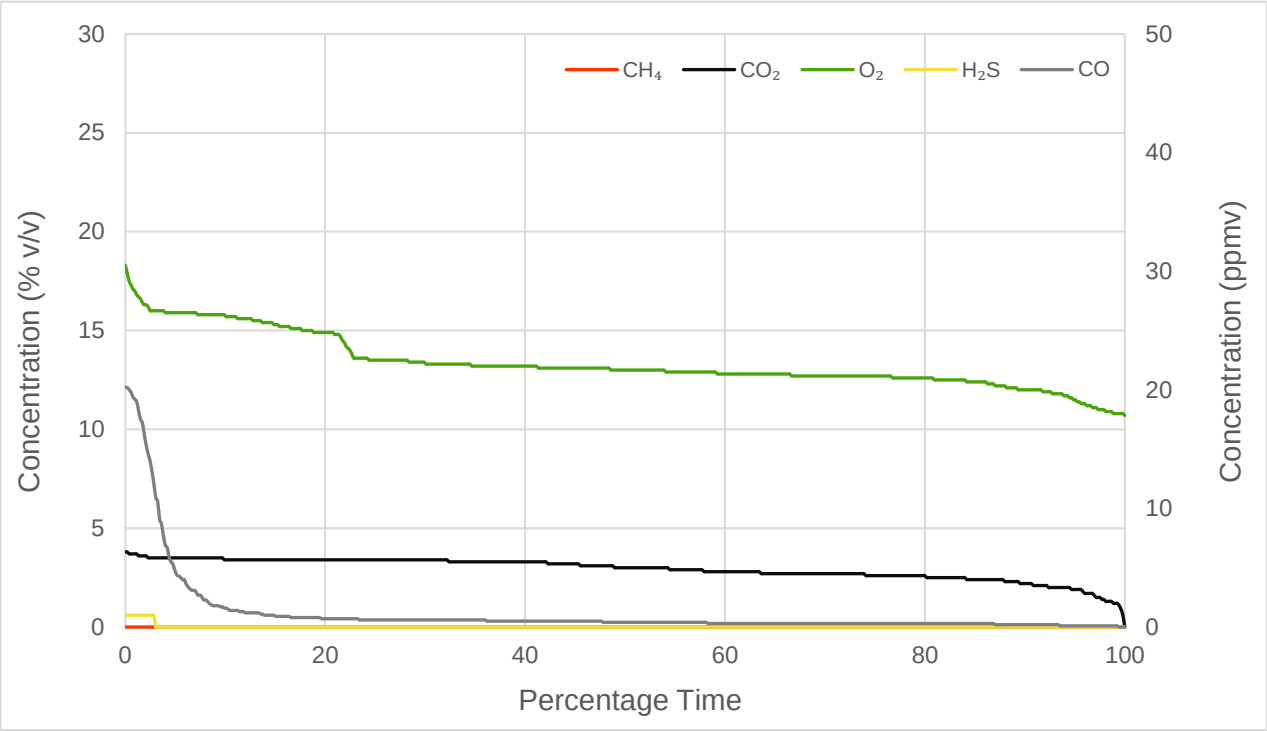


Concentration Duration Graph, WS108

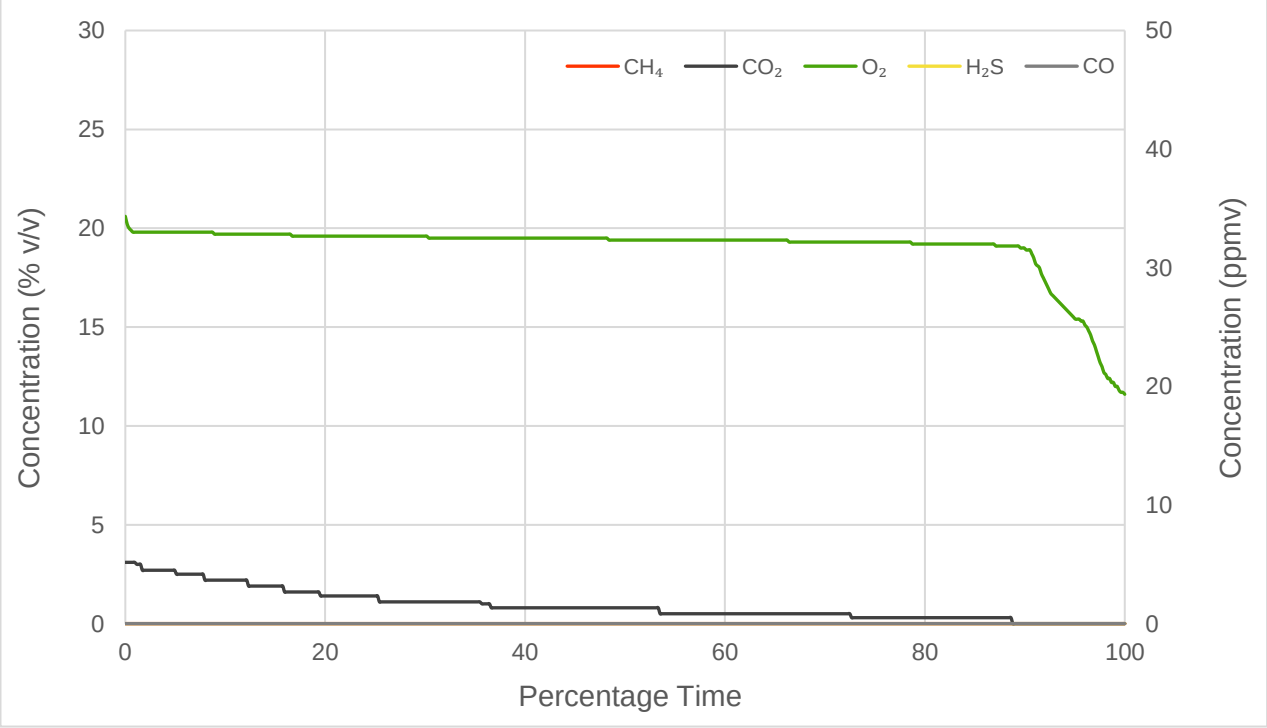


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Experts in Continuous Monitoring

Concentration Duration Graph, WS109



Concentration Duration Graph, WS110



Appendix F

Calibration Certificates

Experts in Continuous Monitoring

Appendix C

Risk Matrix

Risk Evaluation

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552[10]. It involves the classification of the:

- Magnitude of the potential consequence (severity) of the risk occurring (Table A).
- Magnitude if the probability (likelihood) of the risk occurring (Table B).

Consequence (Severity)		
Classification	**Definition**	**Example**
Severe	- Short term (acute) risk to human health likely to results in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. - Short term risk of pollution (note: water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. - Catastrophic damage to buildings/properties. - A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note: the definition of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	- High Concentrations of cyanide on the surface of an informal recreation area. - Major spillage of contaminants from site into controlled waters. - Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	- Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). - Pollution of sensitive water resources (note Water Resources Act contains no scope for considering significance of pollution). - A significant change in a particular ecosystem, or organism forming part of such ecosystem.	- Concentrations of a contaminant from site exceed generic, or site-specific assessment criteria. - Leaching of contaminants from a site to a major or minor aquifer (Principal and Secondary). - Death of a species within a designated nature reserve.
Mild	- Pollution of non-sensitive water resources. - Significant damage to crops, buildings, structures and services ('significant harm' as defined in DETR, 2000). - Damage to sensitive buildings/structures/services or the environment.	- Pollution of non-classified groundwater. - Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	- Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. - Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). - Easily repairable damage to buildings, structures and services.	- The presence of contaminants at such concentrations that protective equipment is required during site works. - The loss of plants in a landscaping scheme. - Discoloration of concrete.

Table A. Classification of Consequence

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

Table B. Classification of Probability.

[10] CIRIA C552 (2001) Contaminated Land Risk Assessment - A Guide to Good Practice.

These classifications are then compared to indicate the risk presented by each pollutant linkage (Table C). It is important that this classification is only applied where there is a possibility (which can range from high likelihood to unlikely) of a pollutant linkage existing.

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

Table C. Comparison of Consequence against Probability

Once the risk has been determined the corresponding action can be assessed (Table D).

Risk	Action Required
Very High Risk	- There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that sever harm to a designated receptor is currently happening. - This risk, if realised, is likely to results in a substantial liability. - Urgent investigation (if not already undertaken) and remediation are likely to be required.
High Risk	- Harm is likely to arise to a designated receptor from an identified hazard. - Realisation of the risk is likely to present a substantial liability. - Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	- It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. - Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	- It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	- There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Table D. Description of the Classification and Likely Action Required.

Where a very low risk is identified no specific remediation is required.

Where a low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where there is a moderate/low risk is identified, an assessment will be undertaken to establish what category the pollutant linkage will fall into.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

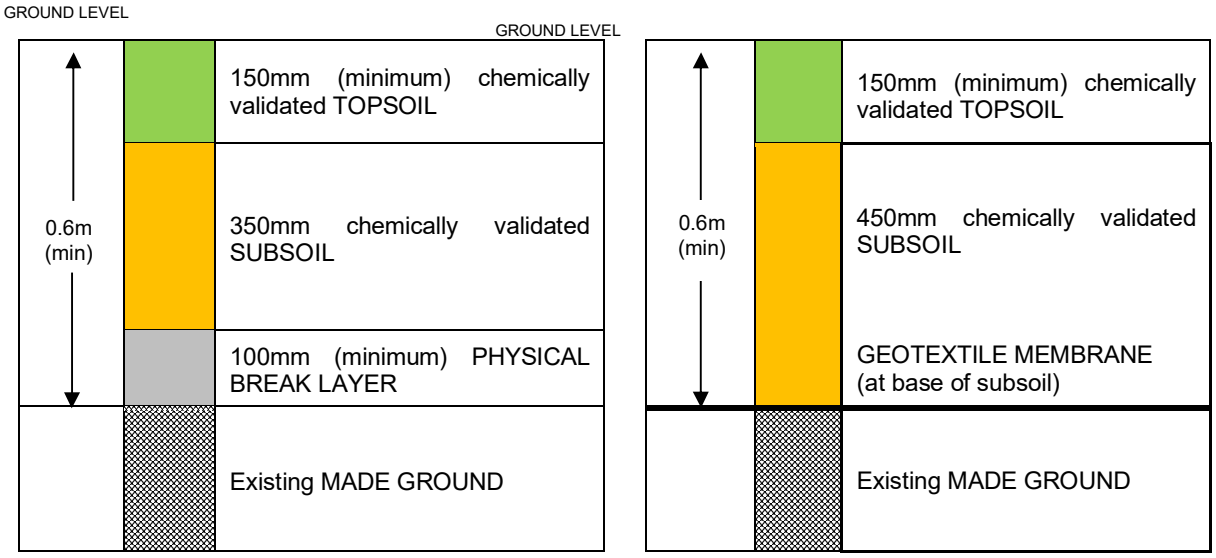
Appendix D

Environmental Cover System Construction

Private Gardens
Shared Landscaping

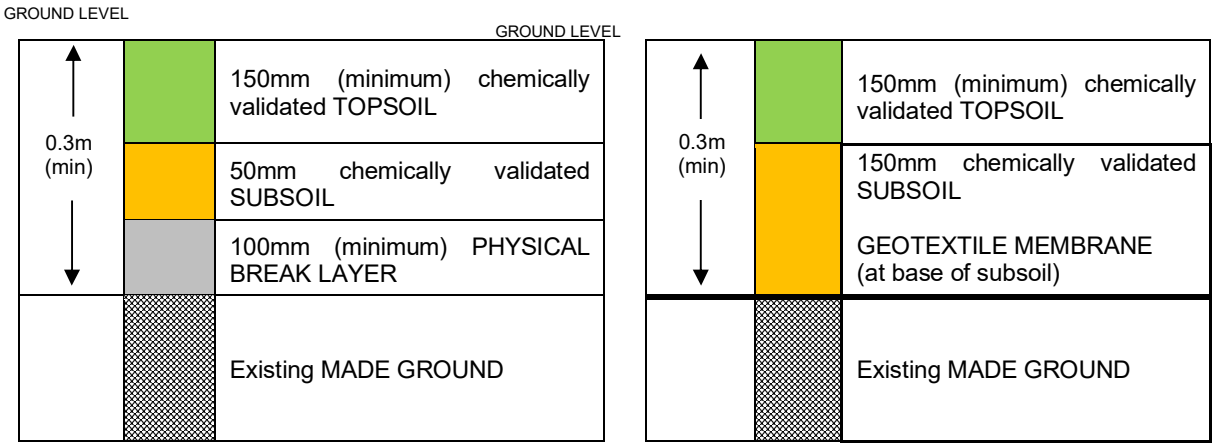
PRIVATE BACK GARDENS:

Either (physical break layer)
Or (geotextile membrane)



PRIVATE FRONT GARDENS / SHARED LANDSCAPING:

Either (physical break layer)
Or (geotextile membrane)



Hardstood Areas – No Remediation Required

Based across the UK with offices in Manchester, London, Liverpool and Glasgow.

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LK GROUP

- Geotechnical
- Contaminated Land
- Flood Risk and Drainage
- Asbestos
- Invasive Species
- Land Remediation
- Project Management
- Land Drilling

APPENDIX E

LK Consult Verification Report
2021

ENABLING WORKS VERIFICATION REPORT

For

SCHOOL STREET, RADCLIFFE



Prepared for

BURY METROPOLITAN BOROUGH COUNCIL

Prepared By

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DOCUMENT QUALITY ASSURANCE

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LKR Document Title:	Enabling Works Verification Report
LKR Document Reference:	LKR211003_VR
Revision:	0
Status:	FINAL September 2021
Prepared By:	PD
Approved By:	CL

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Those using this information in subsequent assessments or evaluations do so at their own risk.

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Appendix B: Waste Exemption

Appendix C: Photographic Record

Appendix D: Chemical Laboratory Testing Results

Appendix E: Geotechnical Laboratory Testing Results

1 Introduction

1.1 The Commission

LK Remediate Limited (LKR) were commissioned by Bury MBC (the Client) to carry out site remediation and enabling works at the School Street site, Radcliffe, M26 3BP.

1.2 Site Description & Proposed Development

Adjacent to the east of Millwood School, to the north of junction between Pendlebury Street and School Street, Bury and centred at approximate National Grid Reference 378045E 4071484N, the site measures approximately 23,500m^2. The site location and site boundary on Figure 1 and Figure 2, respectively and included in Appendix A.

The site has been remediated to enable the regeneration of the site for residential use with associated access, parking and landscaping.

1.3 Enabling Works Verification Report

The remediation strategy considered that the remediation works are spilt into 'pre-construction' (or enabling works) phase and the 'build phase' (i.e. during the development works) phase.

The scope of this verification report covers the 'pre-construction' enabling works phase, a 'post-construction' build phase verification report will also be required but is not part of this report.

The aim of this report is to demonstrate to the Local Authority (LA) that the site has been suitably remediated to the extent that construction works may commence and the site is suitable for use (subject to regulatory approval of the 'post- construction' remediation works).

2 Background

2.1 Previous Reports

The following reports have previously been issued and should be read in conjunction with this report:

- Phase I & II Geo-Environmental Site Investigation undertaken by REC (ref: 46009P1R0, dated April 2015).
- Desk Based Coal Mining Risk Assessment undertaken by LK Consult (ref: CL-602-LKC 20 1836-01, dated December 2020).
- Report on Coal Mining Related Site Investigation Works undertaken by The Land Consultancy Limited (ref: T010 SFK (TLC1135) rep BS LKConsult 120121, Dated January 2021).
- Addendum Gas Risk Assessment and Updated Remediation Strategy undertaken by LK Consult (ref: CL-602-LKC 20-1836-02, dated January 2021).

A history of the site is included in the Phase I report which indicates the site to have been largely undeveloped until the early part of the 20th century, when a school is shown to be present on site. The school occupied the site until its demolition to ground level in 2011 and the site has been vacant since.

2.2 Ground Conditions

The various phases of geo-environmental site investigation works undertaken both by REC and LK Consult (LKC) included boreholes and trial pits. Ground conditions encountered across the investigations were found to be largely similar between the investigation and can be summarised as:

- Generally granular made ground comprising sand or sandy gravel with brick, ash and clinker. Made ground during the LKC investigation ranged from 0.6-1.5mbgl, with in-ground structures noted within several investigation locations (largely associated with the footprint of the former school building).
- Natural strata was encountered beneath made ground and comprised largely variously clayey, silty sand and gravel, with some areas of sandy clay.

No significant olfactory evidence of contamination was noted in any of the site investigations.

2.3 Pollutant Linkages

The Remediation Strategy included an updated, overarching assessment of the Pollutant Linkages in previous reports incorporating the addition investigation information.

Table 2-1 shows a summary contamination conceptual model based upon the results of the REC and LKC investigation works.

Pollutant Linkage		Risk	Recommendations
Human Health	Contaminants posing a risk to site users via dermal contact, ingestion and inhalation (of soil, dust, fibres and vegetables).	Moderate	Elevated heavy metals and PAHs identified across the site. Recommendations: Remediation required in garden and soft landscaping areas.
		Low	No elevated petroleum hydrocarbons or asbestos identified. Recommendations: No remediation required.
	Volatile contaminants posing a risk to site users via the inhalation of vapours.	Low	No evidence of volatile contaminants. Recommendations: No remediation required.
Gas risk	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	Moderate	Elevated methane above 1% recoded in a number of locations for prolonged periods. Recommendations: CS2 gas protection measures required.
Controlled Waters	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	Low	No elevated contaminants identified in groundwater. Recommendations: No remediation required.
Buildings	Sulphate posing a risk to building via direct contact (sulphate attack).	Low	Elevated sulphate identified in parts of the site. Recommendations: No sulphate concrete required (DS-1 AC-1) to be confirmed by a suitably qualified structural engineer.
Potable Water Pipe	Organic contaminants posing a risk to water pipes.	Moderate	Organic contamination identified at potable pipe depth of 0.75-1.35mbgl. Recommendations: UU risk assessment to be completed. The site will likely require barrier piping.
Plants	Phytotoxic metals posing a risk to flora via root uptake.	Low	No phytotoxic metals above generic criteria. Recommendations: No remediation required.

Table 2-1: Summary of Contamination Conceptual Model.

2.4 Additional Information

2.4.1 Coal Mining

The coal mining investigations identified the presence of shallow in-tact coal seams beneath the site. Although no evidence for the presence of shallow coal workings was encountered, the presence of voids could not be discounted. The recommendations following the investigation were that programme of proof drilling and grouting on a an approximate 6m grid should be undertaken. The coal mining remediation was undertaken by a specialist contractor and is reported separately.

2.4.2 Waste Exemptions

The U1 & T5 Waste Exemption, Exemption Ref: WEX278163, was issued by the Environment Agency. The exemption allowed the recovery and subsequent re-use of suitable materials as construction material and in the construction of roads. A copy of the exemption record is included in Appendix B.

2.4.3 Tree & Vegetation Clearance

Tree and vegetation clearance was undertaken by a specialist contractor in line with the provided constraints plan. Details of the clearance works is not included in this report and is provided under separate cover.

2.4.4 Service Disconnection

Services tracing and disconnections was undertaken by a specialist contractor in line with Client specifications. Details of disconnections works is not included in this report and is provided under separate cover.

2.4.5 Demolition

A Demolition Method Statement (DMS) was completed and supplied with a Section 80 notice prior to demolition of the on-site building. A Section 81 notice was provided by Bury MBC (document ref

DM/21/0012). Demolition works were undertaken in accordance with the DMS and Section 81 notice. The application, DMS and notice are not included in this report, but can be supplied on request.

2.4.6 H&S Risk Assessment & Method Statement

A CPP was produced under CDM Regulations prior to the start of the enabling works. The CPP is not considered in this report.

3 Pre-Construction Phase Remediation & Enabling Works

3.1 Scope of Work

The remediation works can be split into 'pre-construction' enabling works phase, and a 'post-construction' build phase. This verification report relates to 'pre-construction' remediation works. Additional post-construction remediation works are required to satisfy planning requirements once the main construction has been completed. A separate report should be issued to cover post construction remediation works.

The scope for the enabling and pre-construction remediation works are summarised below:

- Soft strip, asbestos removal and demolition of existing building.
- Breaking out and crushing hardstanding and relic foundations.
- Earthworks including excavation of made ground to remove obstructions, cut/fill, re-engineering of soils.
- Excavation, haulage, further assessment and management of potentially impacted materials.
- Disposal of materials unsuitable for retention on site.
- Maintain a watching brief for any previously unidentified or unexpected ground conditions or contamination.
- Placement of site-generated material with trimming and compacting of surfaces.

Photographs were taken throughout the enabling works, a selection is presented in Appendix C.

Post construction remediation work requirements are summarised as follows:

- Provision of a suitable clean environmental cover system in gardens and soft landscaping areas.
- Verification testing of site-won and imported soils for use in clean cover system.
- Characteristic Situation 2 gas protection measures.
- Potable water pipeline risk assessment and barrier pipe (as required), with evidence of installation.

3.2 Supervision and Verification

The enabling and pre-construction remediation works were under full time supervision by a suitably qualified remediation site manager, with additional support and part time supervision by a geo-environmental engineer. The site personnel maintained a watching brief for any unusual ground conditions or visual or olfactory evidence of contamination during the enabling works.

Suitability for use, disposal or verification testing was undertaken by the LKR geo-environmental engineer as required and results are discussed in the following sections.

3.3 Site Clearance & Waste Management

The site was cleared of residual debris. Vegetation clearance was undertaken by a specialist contractor. Small amounts of waste material (including general site waste) was segregated into appropriate waste types and removed from site by registered waste carriers to suitably licenced facilities.

3.4 Demolition

Demolition of the on-site building was undertaken by a specialist contractor as described in the demolition method statement. No significant variations were undertaken.

During the demolition, asbestos removal works and ACM surface pick was undertaken by Hardcore Crushing Ltd. ACM was placed in a lockable enclosed skip and taken via Licensed Haulier suitably licensed facility. Duty of care records are not included in this report but can be provided on request.

Other materials from the building soft strip were separated based on material type, e.g. wood, plastic, metals, etc and were placed in on site skips for disposal, recycling where possible. Suitable hard materials (brick and concrete) were processed

3.5 Watching Brief & Variations to the Remediation Strategy

The enabling and pre-construction remediation works were under full time supervision by a suitably qualified remediation site manager, with additional support and part time supervision by a geo-environmental engineer.

The site personnel maintained a watching brief for any unusual ground conditions or visual or olfactory evidence of contamination during the enabling works. No evidence of unexpected contamination was noted during the enabling works.

3.6 Earthworks Segregation & Re-use

Excavations to remove relict obstructions were supervised by a remediation site manager and geo-environmental consultant. All areas of hardstanding, including buried floor slabs and walls, redundant drainage and historical foundations were broken out and excavated to stockpile. Oversize, concrete and bricks were stored in temporary stockpiles prior to crushing for reuse on site. Materials were crushed to form site generated aggregates for reuse on site. Any large fragments of unsuitable materials (e.g., wood, plastics etc.) were picked and placed in skips for removal to a suitably licensed landfill site or recycling facility.

Made ground was placed in layers (approximately 250mm thick) and graded to site levels. Site generated aggregates were placed, compacted and trimmed to form a level surface and minimise low areas as far as reasonably practicable.

Three stockpiles of material types were retained on site for re-use as required as part of the construction phase development. The as-built survey included in Appendix A (drawing ref SCL001) shows the position and volume of each stockpile as follows:

- BB1 - site generated 6F2, volume 876m^3;
- BB2 – site won clay soils, volume 495m^3;
- BB3 – site won subsoil, volume 838m^3.

Geo-environmental testing of site generated materials was undertaken and discussion is included in the following sections. Re-use of materials should be undertaken with recourse to suitable exemptions and or Materials Management Plan as part of construction phase development. Surplus materials should be removed from site as a waste under waste duty of care protocols.

3.7 Control of Water

Localised areas of perched groundwater were encountered within relict substructures such as basements and foundations and at the interface between made ground and natural strata, particularly within the southern sector of the site. During the enabling works, groundwater was controlled using pumps and grips in accordance with CIRIA Report 113[1].

3.8 Assessment of Site Won Materials

3.8.1 Soil Sampling (Contamination)

Risk assessment involves identification and evaluation of the hazards presented by the concentrations of contaminants measured followed by an evaluation of the risks which are associated with these hazards (LCRM[2]).

No evidence of contamination was noted during enabling works. Two confirmatory samples of clay soils (CL1A and CL1B) and subsoil (SS1A and SS1B) were collected and sent for laboratory analysis.

Samples were scheduled for the following suites of testing:

- Metals / metalloids, pH, water soluble sulphate, speciated PAHs, TPHCWG, BTEX, MTBE, SOM and asbestos screen (including identification and type, if present).

In addition to clay and subsoil testing, three samples of site generated aggregates (CR01-03) were scheduled for chemical analysis as above.

Due to the coarse nature of site generated aggregate, representative samples were collected into laboratory supplied bulk bags - therefore were reported as 'deviating samples'. Given the material largely comprised

[1] CIRIA (1986). "Control of Groundwater for Temporary Works" REP R113.
[2] Land Contamination Risk Management (LCRM) https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

brick and concrete fragments and there was no evidence of hydrocarbon contamination, this is not thought to compromise the validity of the results. Indeed, the samples were crushed and homogenised prior to analysis, thereby increasing the surface area of components such as tarmacadam and is thereby considered a very conservative assessment.

Results from chemical analysis are included in Appendix D.

Site-won material has been assessed published assessment criteria for residential land-use criteria I. With regards to the soil risk assessment LKR will use the following hierarchy:

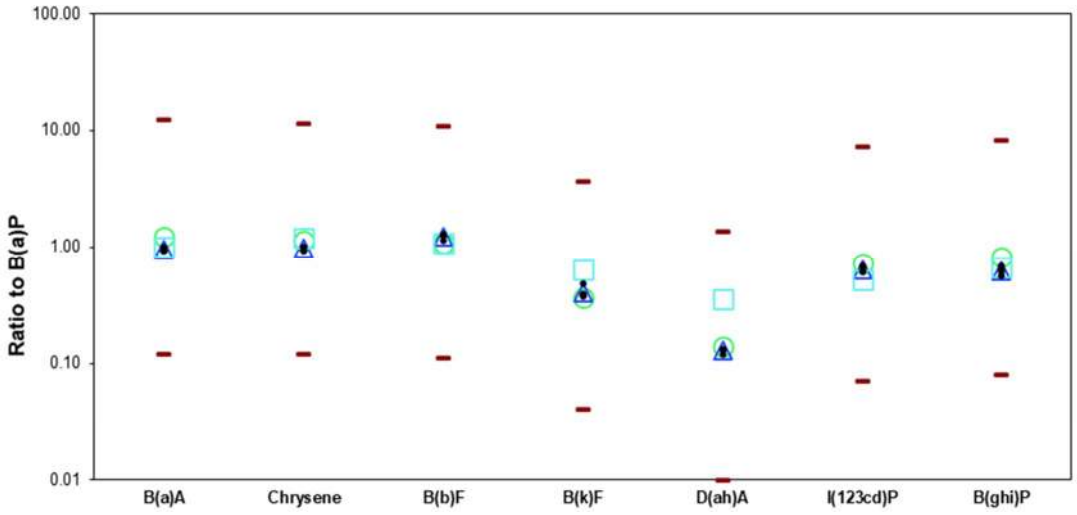
- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).

LKR consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the PAHs[3,4] and naphthalene the most volatile and soluble[5]. The C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible[6]. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)[7] and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

All criteria have been generated using the CLEA V1.07 model[8] based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

Based on the above assumption for PAHs, LKR undertook an assessment of the data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et.al*[9], which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 3-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.



Graph 3-1: The ratio of PAH to B(a)P in soil for all for site generated aggregate and subsoil samples based on 7 samples (where values were >LOD to allow the calculation of a ratio).

Notes:

B(a)P = Benzo(a)pyrene; D(ah)A = Dibenzo(ah)anthracene; B(a)A = Benzo(a)anthracene; B(b)F = Benzo(b)fluoranthene; B(k)F = benzo(k)fluoranthene; I(123cd)P = Indeno(123cd)pyrene; B(ghi)P = Benzo(ghi)perylene ● = Ratio to B(a)P for all data ○ = Mean ratio to B(a)P for Culp data △ = Mean ratio to B(a)P from all data at the site □ = Mean ratio to B(a)P for UK data presented by HPA ▬ = Upper and Lower limits (order of magnitude from Culp data)

[3] EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.
[4] USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."
[5] EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.
[6] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[7] HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.
[8] EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.
[9] Culp, S; Gaylor, D; Sheldon, W; Goldstein, L and Beland, F (1998). "A Comparison of Tumours Induced by Coal Tar and Benzo-a-pyrene in a 2-Year Bioassay." Carcinogenesis. Vol 19, no. 1, pp. 117-124.

All the data points that could be used to calculate ratios fall inside the upper or lower limits. Based on this distribution of data LKR considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable for this dataset.

The proposed development is for residential land use with gardens and soft landscaping therefore assessment criteria for residential with plant uptake has been used. There were no exceedances of generic assessment criteria from any of the site generated aggregate laboratory samples or subsoil samples analysed and no asbestos was identified.

Based on the testing undertaken and the findings of the watching brief, the site generated aggregates is considered suitable for use beneath roads, plots and as a break layer beneath clean cover soils. Subsoil and clay soils is considered suitable for use as part of clean cover soils in gardens and soft landscaping.

Additional testing should be undertaken as part of the build phase. Steps should be taken to maintain segregation (site briefings, signage, fencing, etc) and avoid cross contamination of clean site won aggregates and subsoils during construction phases. Should unsuitable material be mixed with clean material on site, this may render them unsuitable for use. Material to be imported for soft landscaping will be subject to additional testing as part of the build phase verification works.

3.8.2 Soil Sampling (Geotechnical)

Geotechnical laboratory testing was undertaken on site generated aggregates and comprised Particle Sized distribution, Los Angeles Coefficient, and dry density/ moisture content. All data are within the acceptable limits for 6F2 selected granular material as per the Specification for Highway Works Table 6/1. Geotechnical laboratory results are included in Appendix E.

4 Conclusions

4.1 Pre-construction Remediation & Enabling Works

The proposed site enabling and pre-construction remediation works have been carried out in accordance with the Remediation Strategy for the site submitted to the Local Authority.

The site was cleared of small amounts of general waste and vegetation prior to enabling works. Small volumes of site generated wastes were segregated based on material type and placed in skips for removal from site by a suitably licensed contractor.

Demolition of the small building on site was undertaken in line with the DMS and Section 81 notice. The building was soft stripped and asbestos was removed by specialist contractor to a suitable licensed facility.

A watching brief was maintained throughout the enabling works by a suitably qualified remediation site manager and geo-environmental consultant. No unexpected contamination was identified during the enabling works.

Contamination and geotechnical testing undertaken on site generated aggregates, subsoil and clay met the assessment criteria. Based on the testing undertaken and the findings of the watching brief, the site generated aggregates is considered suitable for use beneath roads, plots and as a break layer beneath clean cover soils. Subsoil and clay soils is considered suitable for use as part of clean cover soils in gardens and soft landscaping.

Subject to the recommendations and subsequent verification of the outstanding 'build phase' remediation works detailed in remediation strategy report.

4.2 Build Phase Remediation & Verification

Build phase remediation works are not part of this report and should be undertaken in accordance with the agreed remediation strategy report.

The scope of the build phase remedial works comprises:

- Suitable Environmental Cover Layer in soft landscaping areas.
- Characteristic Situation 2 (CS2) gas protection measures.
- United Utilities risk assessment for potable water pipes and installation of barrier pipes, as required.

The remaining 'build phase' remediation carried out on the site requires validation by a third party and suitable documentary evidence provided in a Site Completion Report, such as photographs, consignment documents and analytical results. This should include as a minimum:

- Installation of the correct water pipe specification and confirmation of the use of first-generation trench backfill, as required.
- Gas protection validation.
- Environmental Capping Layer depth validation.
- Validation testing of imported or site won subsoil, topsoil and physical break layer materials, as required.

4.3 Recommendations for Construction Phase

4.3.1 Excavations & Control of Arisings

Groundworks should incorporate suitable material management. Excavations into made ground may yield arisings, whilst they may be considered to be suitable for use, may be deemed hazardous for disposal purposes. The groundworker should carefully segregate (and stockpile separately) aggregate, made ground, and clean natural soils, in order that an excessive volume of unsuitable material is not generated.

A geo-environmental consultant should be consulted and with their approval made ground arisings could be:

- Redistributed beneath concrete, or areas of hardstanding, where they would be satisfactorily isolated from end users.
- Isolated beneath the 600mm thick cover layer in garden or landscaped areas.

- Exported from site to a suitably licensed landfill facility.

Whilst off-site disposal is not generally considered in line with current government philosophy regarding sustainable development, it may be the most practical solution if redistribution and retention on site is not feasible. Any material exported from site should be appropriately characterised and a suitable disposal route determined. Material removed from site should be hauled by a registered waste carrier under appropriate duty of care procedures.

Excavations should remain stable in the short term but if left open for any significant period of time may require shoring, most notably in granular made ground. Trench boxes/ shoring should be installed as soon as possible to minimise risk of sidewall collapse.

4.3.2 Control of Water

Based on observations during the remedial works and site investigation there is potential that groundwater flows will be encountered in shallow excavations. A system of surface water infiltration management (into trenches and stockpiles) should be implemented to minimise its impact during excavations and backfilling activities. Stockpiles should be sealed and prevailing weather conditions should be considered when undertaken certain aspects of groundwork.

Shallow groundwater may need to be controlled in line with current guidance.

Vehicle movements should be monitored and appropriate mitigation employed to minimise plant traffic on exposed areas of soil during excavations.

4.3.3 Clean Cover Soils

At the time of testing, site generated aggregate, subsoil and clay were suitable for use. Steps should be taken to maintain segregation (site briefings, signage, fencing, etc) and avoid cross contamination of clean site won materials during construction phases. Should unsuitable material be mixed with clean material on site, this may render them unsuitable for use in construction phases.

4.3.4 Health & Safety

Workers involved in excavations for foundations, drainage, utilities etc. are likely to come into direct contact with the made ground. In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance[10]) should be adopted by all workers involved with site enabling and construction works.

In addition to the above, the atmosphere in shored trenches in excess of 1.2m should be monitored for oxygen and hazardous gas (methane & carbon dioxide), prior to personnel entering such excavations. Monitoring should continue whilst personnel are working in deep excavations.

4.4 Residual Risk

LKR excavated and screened all made ground to natural strata and no significant contamination was identified. The residual risk is therefore considered low.

There are some areas of the site which it was unable to access (tree protection areas, etc) during enabling works and therefore there remains some risk of previously unidentified contamination within these areas. A watching brief in line with the remediation strategy should be maintained within these areas. If contamination is identified then LKR should be informed and remediation undertaken.

[10] HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

Appendix A – Drawings

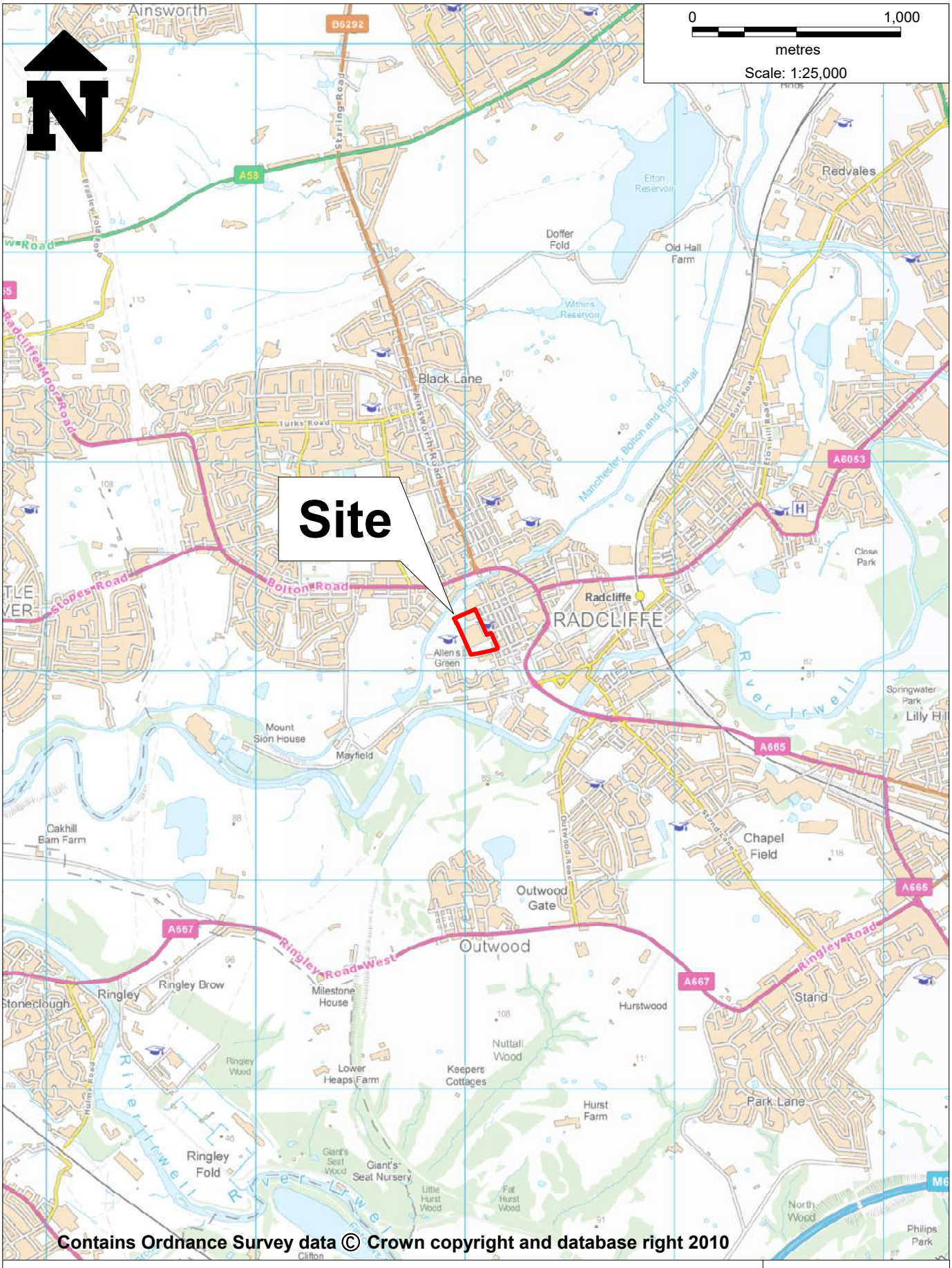
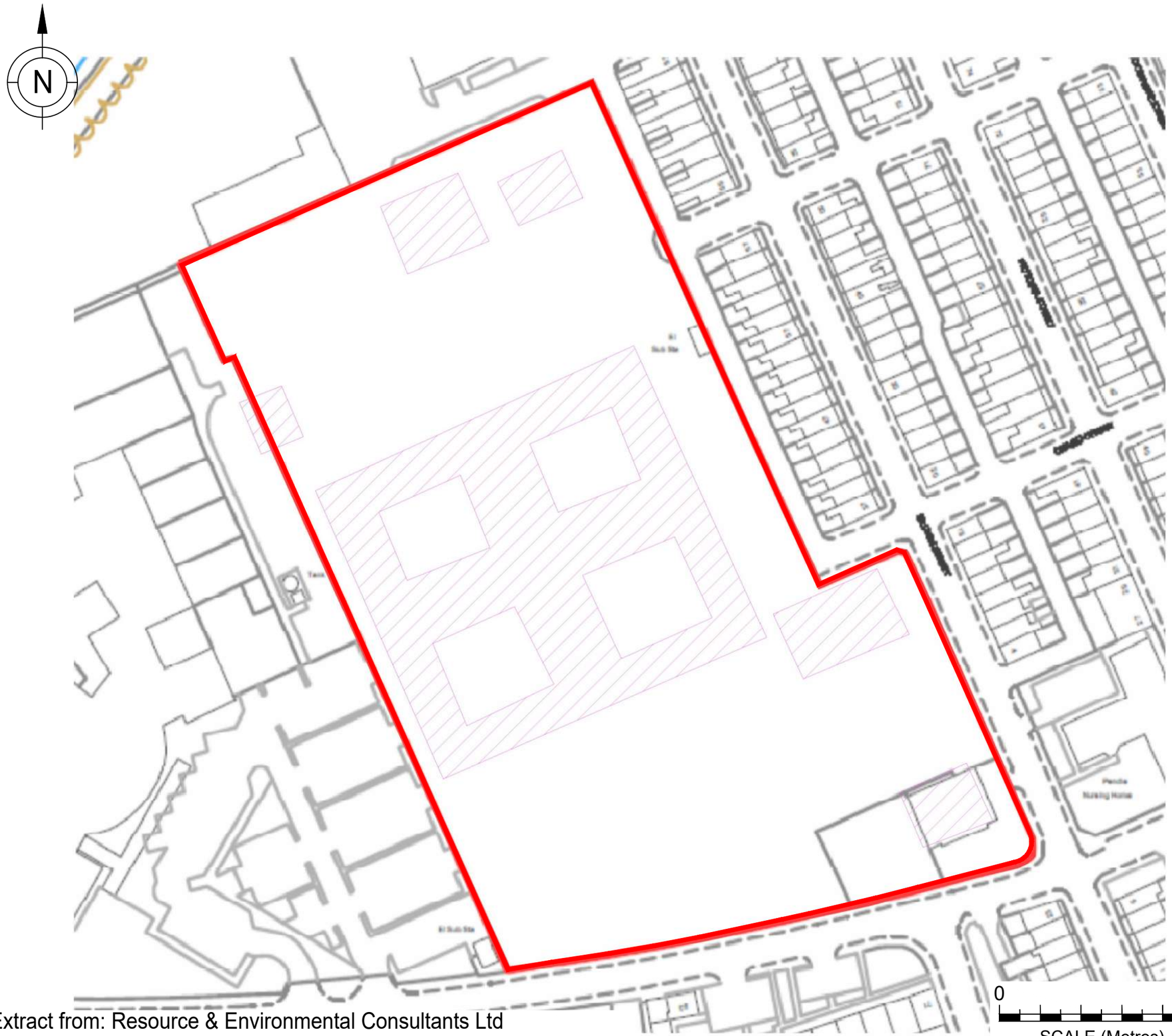


Figure 1: Site Location Plan, Former Riverside School, Bury

Drawn: January 2021 Scale: 1:25,000 @ A4 (see scale bar)

LK CONSULT LIMITED



Extract from: Resource & Environmental Consultants Ltd
Drawing Ref: Historical Features Plan, No.004, Rev:R1 (13/04/2015)

KEY

- Site Boundary
- Former School

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: The Metropolitan Borough of Bury

Site: Former Riverside School, Bury

Title: Site Boundary Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1836	1:1000 @ A3	2	

Drawn By:	Checked By:	Drawn:
AC	BS	Jan 2021



STOCKPILE VOLUMES 02-08-21PROJECTION TO features			
String	Volumes		
	Cut/Material	Fill/Void	Balance
BB1	876.27	0.01	876.27
BB2	494.86	0.00	494.86
BB3	837.84	0.00	837.84

Banks Engineering And Management Ltd

Revisions:

Rev.	Date	Description	By
A	04/08	FEATURES UPDATED	AB

Project:
School Lane

Drawing Title:
02-08-21 Topo Survey

Drawing Ref No:
SCL001

Drawn/Surveyed By:
AB

Date:02-08-21

Scale at A1:
1:500

Notes:

Volumes and levels surveyed to OSGB15

FOR INFORMATION ONLY

Appendix B – Waste Exemption

Waste exemption registration WEX278163

We confirm that the details you have entered, as shown below, are now on the exemptions register. Your registration should show on the public register within 5 days.

This document is not a permit. Exemptions may have ceased or been revoked.

To check whether these exemptions are still valid, check the company's registration WEX278163 on the public register of waste exemptions: https://environment.data.gov.uk/public-register/view/search-waste-exemptions

Business responsibilities

The business or organisation responsible for carrying out the exempt waste operations agrees to:

- comply with all limits on waste types and quantities
- comply with all conditions governing how waste must be stored, handled and treated
- carry out the operations without endangering human health or harming the environment

For the operations to remain exempt they must be carried out without:

- causing risk to water, air, soil, plants or animals
- causing a nuisance through noise and odours
- negatively affecting the countryside or places of special interest

In sensitive locations, extra controls may be needed over and above those set out in the exemptions to make sure this happens.

Registration details

Registration details

Reference Number	WEX278163
Date registered	25 June 2021

Exemptions

U1: Use of waste in construction	Expires on 24 June 2024
T5: Screening and blending waste	Expires on 24 June 2024

Your contact details

Your name	Richard Clarke
Your telephone number	07741 668707
Your email address	r.clarke@thelkgroup.com

Waste operator details

Business or organisation type	Limited company
Waste operator responsible for these waste operations	L K Remediate

Address of the Waste operator	L K GROUP UNIT 29, ETON BUSINESS PARK ETON HILL ROAD RADCLIFFE MANCHESTER M26 2ZS

Waste operations contact

Name	Richard Clarke
Position	Technical Manager
Telephone number	07741 668707
Email	r.clarke@thelkgroup.com
Address	L K GROUP UNIT 29, ETON BUSINESS PARK ETON HILL ROAD RADCLIFFE MANCHESTER M26 2ZS

Waste operation details

Grid reference	SD 78050 07165
Site details	Site of former school buildings on corner of Ulundi Street and School Street, centred on above grid reference

Appendix C – Photographic Record

Photographic Records





Tree and light vegetation clearance





Example of service trace and exposure





Example of relict structures removed as part of enabling works





Example of site turnover, removing relict structures and material management.



Oversize awaiting crushing.



Crushing to produce site generated aggregates.





Soft strip, material segregation and demolition



Example of tree protection fencing



Placing site generated aggregates to form site levels.





Coal mining grouting.





Coal mining grouting, showing placed site aggregates at surface and tree protection fencing.





Stockpile sampling





Removal of existing fencing and replace with new.





Example of finished site surfaces.



Example of finished site surfaces and tree protection fencing.

Appendix D – Chemical Laboratory Testing Results

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-13753-1
Initial Date of Issue:	04-May-2021
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Peter Dunn Richard Clarke
Project	LKR 21 1003 School Street

Quotation No.:		**Date Received:**	27-Apr-2021
Order No.:	LKR211003/RC	**Date Instructed:**	27-Apr-2021
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	04-May-2021
Date Approved:	04-May-2021		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: LKR 21 1003 School Street

Client: LK Consult			**Chemtest Job No.:**		21-13753	21-13753	21-13753
Quotation No.:			**Chemtest Sample ID.:**		1188327	1188328	1188329
			Client Sample ID.:		CR01	CR02	CR03
			Sample Location:		SP	SP	SP
			Sample Type:		SOIL	SOIL	SOIL
			Date Sampled:		20-Apr-2021	20-Apr-2021	20-Apr-2021
			Asbestos Lab:		COVENTRY	COVENTRY	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	15	1.3	7.3
Soil Colour	N	2040		N/A	Brown	Brown	Grey
Other Material	N	2040		N/A	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached	See Attached
pH	M	2010		4.0	9.0	11.4	12.0
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.015	0.064	0.26
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	6.9	5.5	13
Cadmium	M	2450	mg/kg	0.10	< 0.10	< 0.10	0.14
Chromium	M	2450	mg/kg	1.0	9.5	9.2	14
Copper	M	2450	mg/kg	0.50	7.4	4.9	8.6
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	6.9	5.2	12
Lead	M	2450	mg/kg	0.50	7.3	8.3	13
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	20	13	17
Zinc	M	2450	mg/kg	0.50	24	23	32
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	< 0.40	< 0.40	< 0.40
Diesel Present	N	2670		N/A	False	False	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[C] < 5.0	[C] < 5.0	[C] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0

Results - Soil

Project: LKR 21 1003 School Street

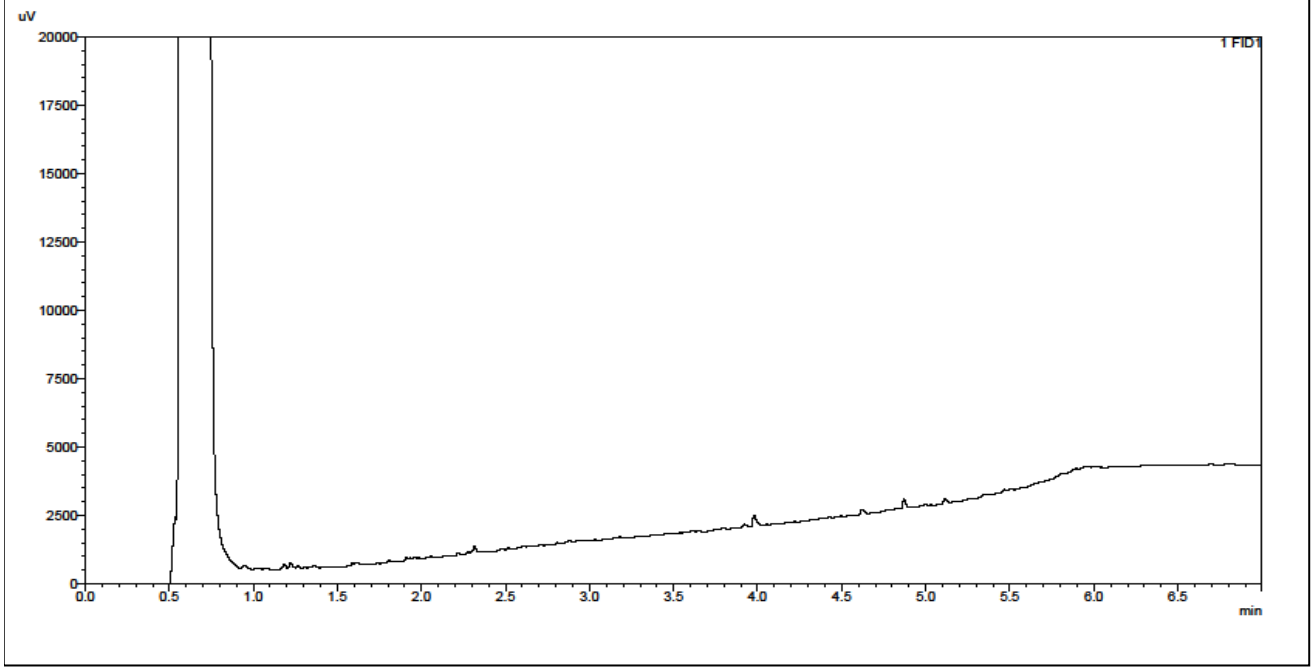
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Quotation No.:			**Chemtest Sample ID.:**		1188327	1188328	1188329
			Client Sample ID.:		CR01	CR02	CR03
			Sample Location:		SP	SP	SP
			Sample Type:		SOIL	SOIL	SOIL
			Date Sampled:		20-Apr-2021	20-Apr-2021	20-Apr-2021
			Asbestos Lab:		COVENTRY	COVENTRY	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[C] < 5.0	[C] < 5.0	[C] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[C] < 10	[C] < 10	[C] < 10
Benzene	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Toluene	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Ethylbenzene	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
m & p-Xylene	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
o-Xylene	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.16	< 0.10	0.16
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	0.17	< 0.10	0.17
Pyrene	M	2800	mg/kg	0.10	0.14	< 0.10	0.13
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

TPH Chromatogram on Soil Sample: 1188327

<Sample Information>

Sample Name : 1188327 21-13753
Data Filename : 29 April 2021_29042021_1188327 21-13753_059.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 30
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Date Processed : 29/04/2021

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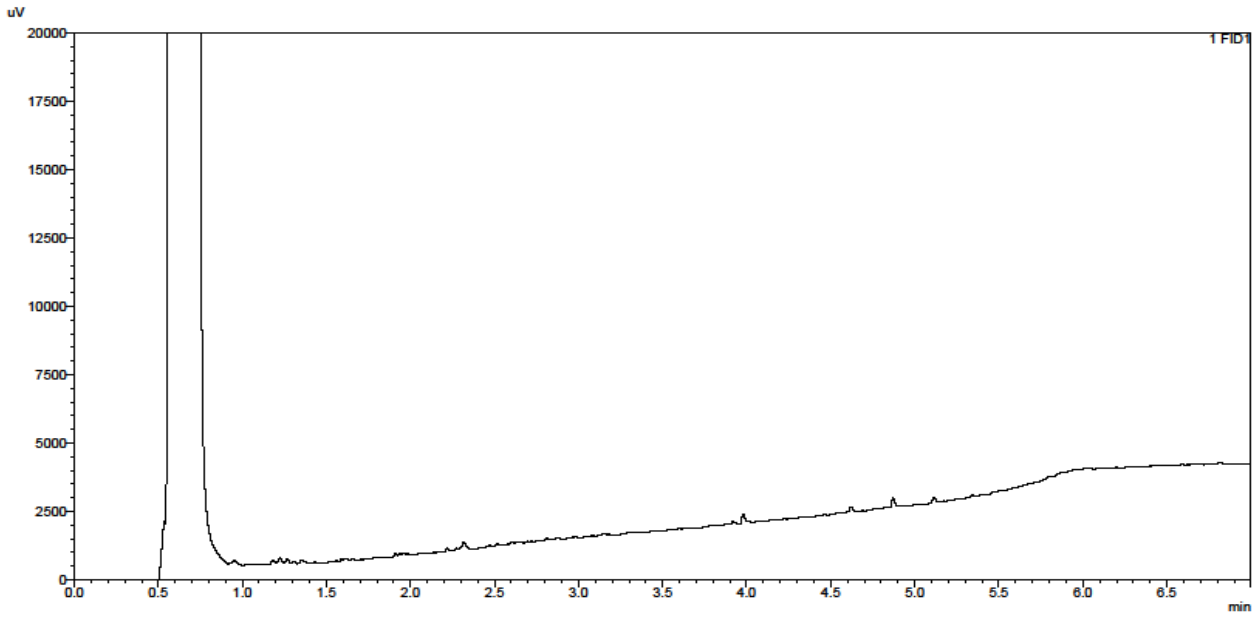


TPH Chromatogram on Soil Sample: 1188328

<Sample Information>

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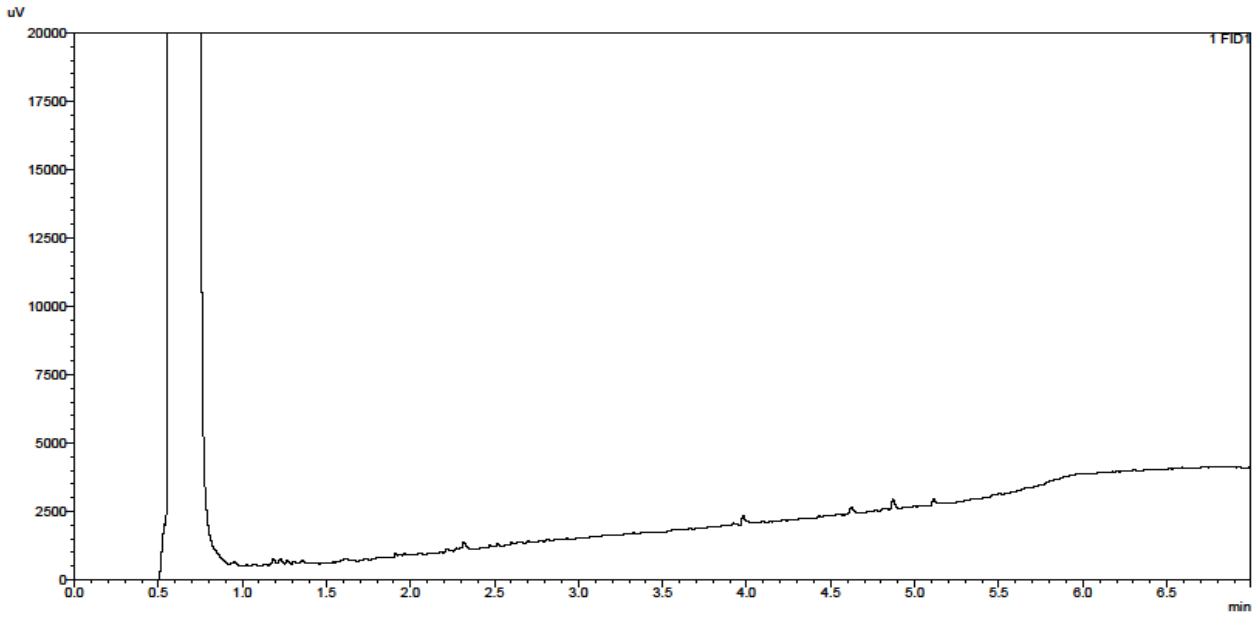


TPH Chromatogram on Soil Sample: 1188329

<Sample Information>

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Data Filename : 29 April 2021_29042021_1188329 21-13753_063.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 32
Date Acquired : 30/04/2021 00:03:44
Date Processed : 30/04/2021

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-13753	1188327	S	SP		CR01		No	N/A
21-13753	1188328	S	SP		CR02		No	N/A
21-13753	1188329	S	SP		CR03		No	N/A

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1188327		CR01	SP	20-Apr-2021	C	Plastic Bag
1188328		CR02	SP	20-Apr-2021	C	Plastic Bag
1188329		CR03	SP	20-Apr-2021	C	Plastic Bag

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	21-24767-2		
Initial Date of Issue:	23-Jul-2021	**Date of Re-Issue:**	26-Jul-2021
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Dene Marland Peter Dunn Richard Clarke		
Project	LKR 21 1003 School Street		
Quotation No.:		**Date Received:**	20-Jul-2021
Order No.:	738858	**Date Instructed:**	20-Jul-2021
No. of Samples:	8		
Turnaround (Wkdays):	5	**Results Due:**	26-Jul-2021
Date Approved:	23-Jul-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: LKR 21 1003 School Street

Client: LK Consult		**Chemtest Job No.:**			21-24767	21-24767
Quotation No.:		**Chemtest Sample ID.:**			1243277	1243278
Order No.: 738858		Client Sample Ref.:			CL1a	CL1b
		Sample Location:			CL1	CL1
		Sample Type:			SOIL	SOIL
		Date Sampled:			19-Jul-2021	19-Jul-2021
		Asbestos Lab:			DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	8.4	8.1
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached
pH	M	2010		4.0	8.1	8.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.10
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	3.4	4.9
Cadmium	M	2450	mg/kg	0.10	< 0.10	0.11
Chromium	M	2450	mg/kg	1.0	5.7	8.2
Copper	M	2450	mg/kg	0.50	12	22
Mercury	M	2450	mg/kg	0.10	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	< 0.50	3.8
Lead	M	2450	mg/kg	0.50	20	31
Selenium	M	2450	mg/kg	0.20	0.31	0.27
Vanadium	U	2450	mg/kg	5.0	< 5.0	6.0
Zinc	M	2450	mg/kg	0.50	21	68
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.7	1.6
Diesel Present	N	2670		N/A	False	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	4.9	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	4.2	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	36	50
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	45	50
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0

Results - Soil

Project: LKR 21 1003 School Street

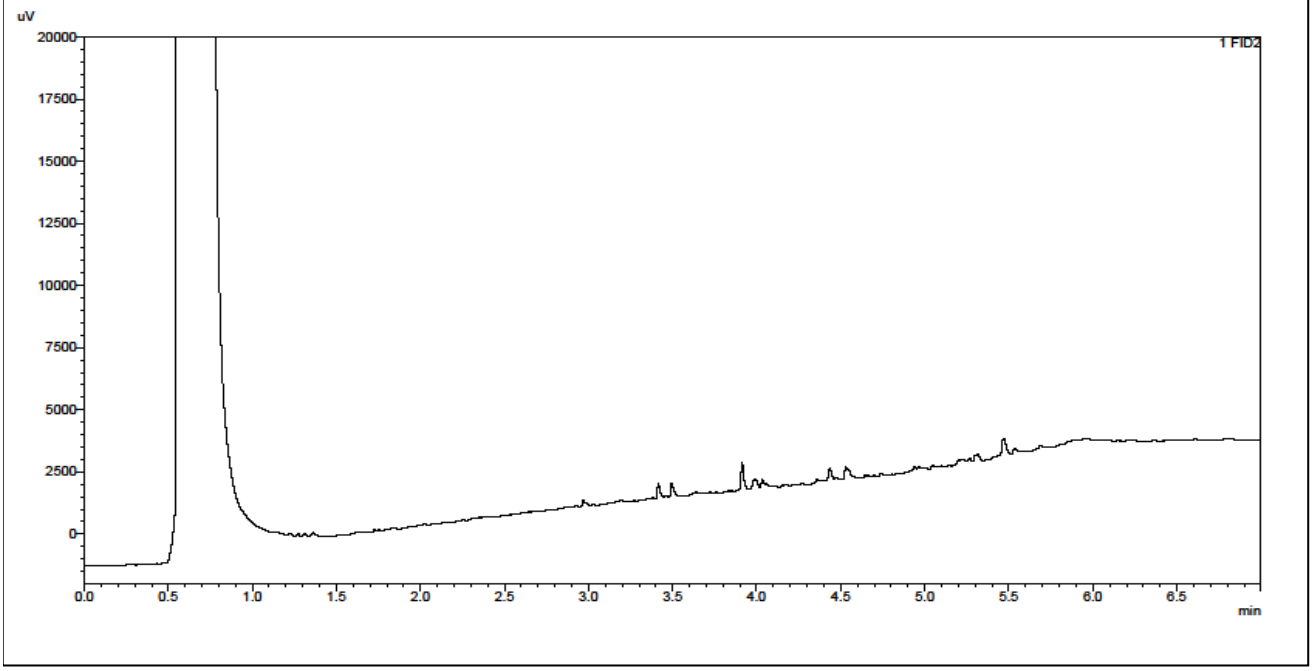
Client: LK Consult		**Chemtest Job No.:**			21-24767	21-24767
Quotation No.:		**Chemtest Sample ID.:**			1243277	1243278
Order No.: 738858		Client Sample Ref.:			CL1a	CL1b
		Sample Location:			CL1	CL1
		Sample Type:			SOIL	SOIL
		Date Sampled:			19-Jul-2021	19-Jul-2021
		Asbestos Lab:			DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	11	1.6
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	110	85
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	3.7	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	120	86
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	170	140
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.90	1.7
Anthracene	M	2800	mg/kg	0.10	0.23	0.43
Fluoranthene	M	2800	mg/kg	0.10	1.7	2.9
Pyrene	M	2800	mg/kg	0.10	1.5	2.7
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.72	1.3
Chrysene	M	2800	mg/kg	0.10	0.72	1.3
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.98	1.5
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.30	0.49
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.76	1.3
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.48	0.79
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.17
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.49	0.74
Total Of 16 PAH's	N	2800	mg/kg	2.0	8.8	15
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10

TPH Chromatogram on Soil Sample: 1243277

<Sample Information>

Sample Name : 1243277 21-24767
Data Filename : 20 July 2021_20072021_1243277 21-24767_086.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 118
Date Acquired : 21/07/2021 01:33:00
Date Processed : 22/07/2021

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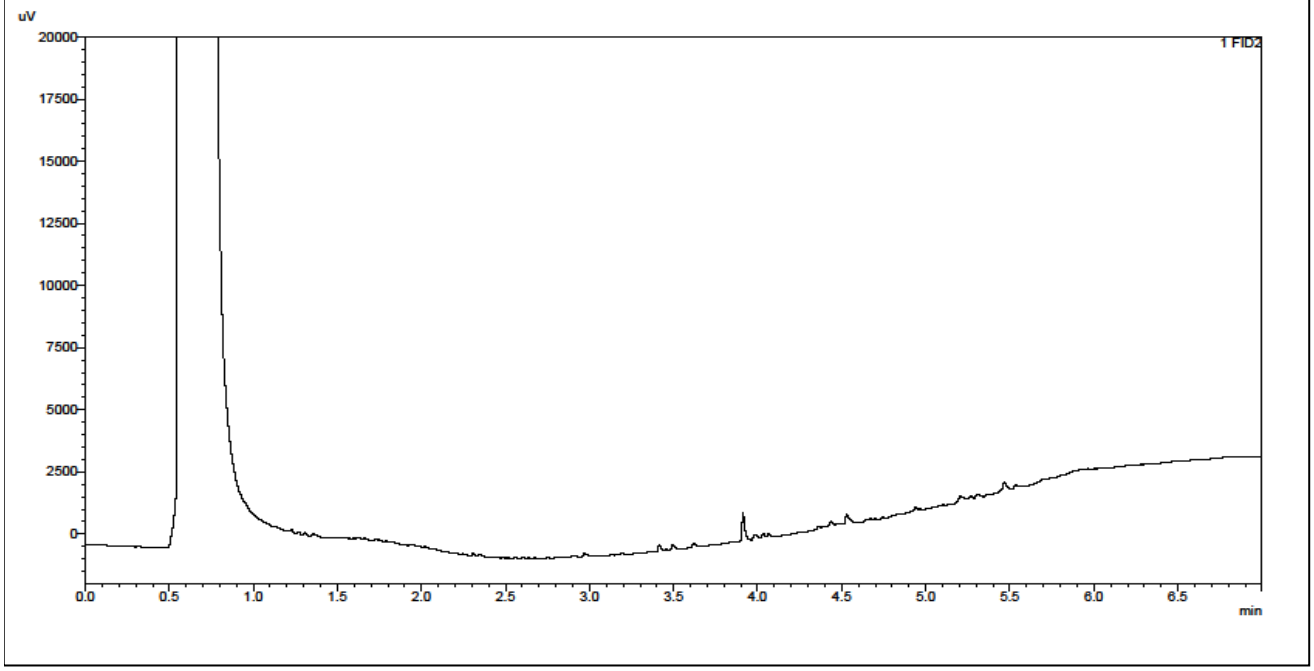


TPH Chromatogram on Soil Sample: 1243278

<Sample Information>

Sample Name : 1243278 21-24767
Data Filename : 20 July 2021_20072021_1243278 21-24767_088.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 119
Date Acquired : 21/07/2021 01:45:45
Date Processed : 22/07/2021

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-24767	1243277	S	CL1	CL1a			No	PAH
21-24767	1243278	S	CL1	CL1b			No	Indiscernible

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	21-24767-2		
Initial Date of Issue:	23-Jul-2021	**Date of Re-Issue:**	26-Jul-2021
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Dene Marland Peter Dunn Richard Clarke		
Project	LKR 21 1003 School Street		
Quotation No.:		**Date Received:**	20-Jul-2021
Order No.:	738858	**Date Instructed:**	20-Jul-2021
No. of Samples:	8		
Turnaround (Wkdays):	5	**Results Due:**	26-Jul-2021
Date Approved:	23-Jul-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: LKR 21 1003 School Street

Client: LK Consult			**Chemtest Job No.:**		21-24767	21-24767
Quotation No.:			**Chemtest Sample ID.:**		1243271	1243272
Order No.: 738858			Client Sample Ref.:		SS1a	SS1b
			Sample Location:		SS1	SS1
			Sample Type:		SOIL	SOIL
			Date Sampled:		19-Jul-2021	19-Jul-2021
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	16
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones, Roots and Wood	Stones, Roots and Wood
Soil Texture	N	2040		N/A	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached	See Attached
pH	M	2010		4.0	8.3	8.4
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.5	3.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.67	0.61
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	16	8.7
Cadmium	M	2450	mg/kg	0.10	0.30	0.18
Chromium	M	2450	mg/kg	1.0	13	11
Copper	M	2450	mg/kg	0.50	44	28
Mercury	M	2450	mg/kg	0.10	0.25	0.17
Nickel	M	2450	mg/kg	0.50	10	8.0
Lead	M	2450	mg/kg	0.50	140	73
Selenium	M	2450	mg/kg	0.20	0.60	0.53
Vanadium	U	2450	mg/kg	5.0	15	11
Zinc	M	2450	mg/kg	0.50	110	80
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	5.9	6.7
Diesel Present	N	2670		N/A	False	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	2.5	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	110	17
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	110	17
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0

Results - Soil

Project: LKR 21 1003 School Street

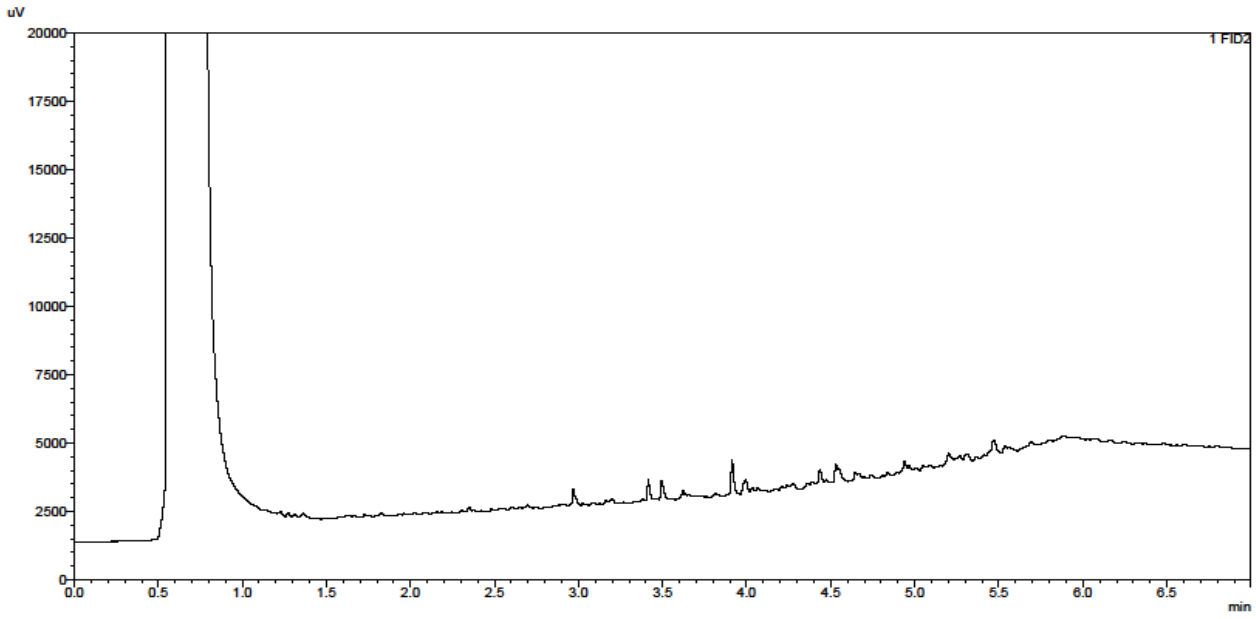
Client: LK Consult			**Chemtest Job No.:**		21-24767	21-24767
Quotation No.:			**Chemtest Sample ID.:**		1243271	1243272
Order No.: 738858			Client Sample Ref.:		SS1a	SS1b
			Sample Location:		SS1	SS1
			Sample Type:		SOIL	SOIL
			Date Sampled:		19-Jul-2021	19-Jul-2021
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	9.9	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	170	19
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	4.2	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	190	19
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	300	36
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	0.37	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	0.39	< 0.10
Fluorene	M	2800	mg/kg	0.10	0.24	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	2.7	4.0
Anthracene	M	2800	mg/kg	0.10	0.60	0.73
Fluoranthene	M	2800	mg/kg	0.10	4.4	4.5
Pyrene	M	2800	mg/kg	0.10	3.8	3.8
Benzo[a]anthracene	M	2800	mg/kg	0.10	1.8	1.7
Chrysene	M	2800	mg/kg	0.10	1.9	1.7
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	2.4	2.3
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.92	0.69
Benzo[a]pyrene	M	2800	mg/kg	0.10	1.9	1.8
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	1.3	1.2
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.23	0.24
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	1.3	1.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	24	24
Total Phenols	M	2920	mg/kg	0.10	0.11	< 0.10

TPH Chromatogram on Soil Sample: 1243271

<Sample Information>

Sample Name : 1243271 21-24767
Data Filename : 20 July 2021_20072021_1243271 21-24767_074.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 112
Date Acquired : 21/07/2021 00:16:19
Date Processed : 21/07/2021

<Chromatogram>

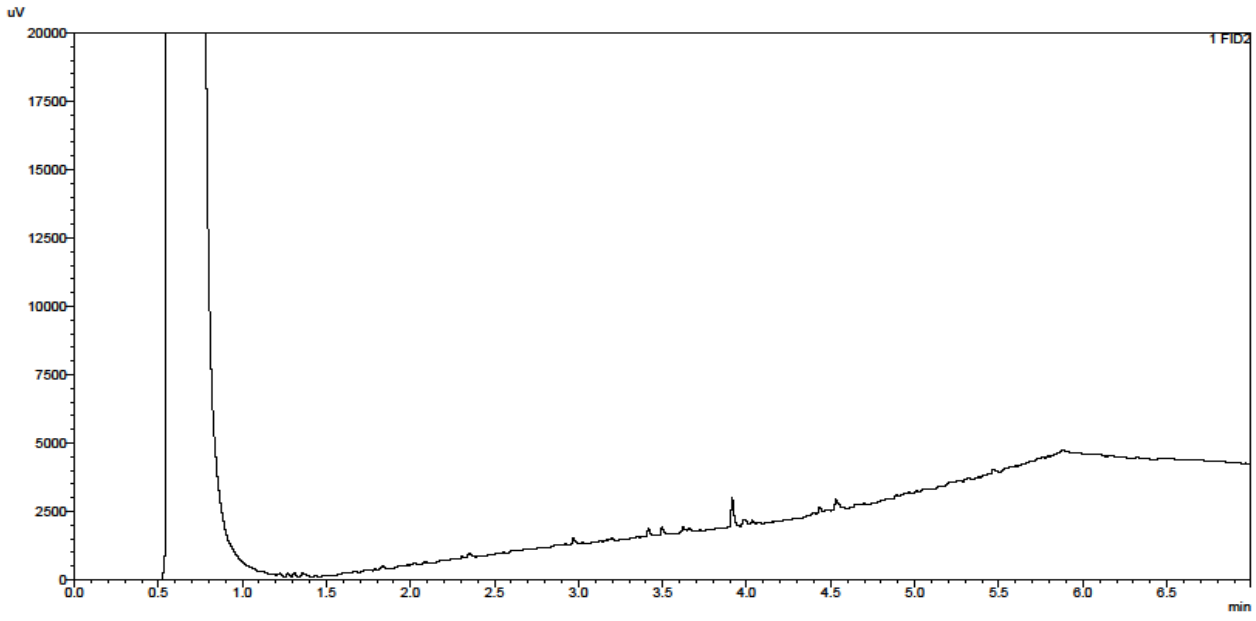


TPH Chromatogram on Soil Sample: 1243272

<Sample Information>

Sample Name : 1243272 21-24767
Data Filename : 20 July 2021_20072021_1243272 21-24767_076.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 113
Date Acquired : 21/07/2021 00:29:08
Date Processed : 21/07/2021

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-24767	1243271	S	SS1	SS1a			No	PAH
21-24767	1243272	S	SS1	SS1b			No	PAH

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix E – Geotechnical Laboratory Testing Results

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client LK Remediate Ltd

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract LKR 21 1003 –
School Street, Radcliffe

Job Number MRN 4117/10
Date of Issue 27 May 2021
Page **1 of 17**

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

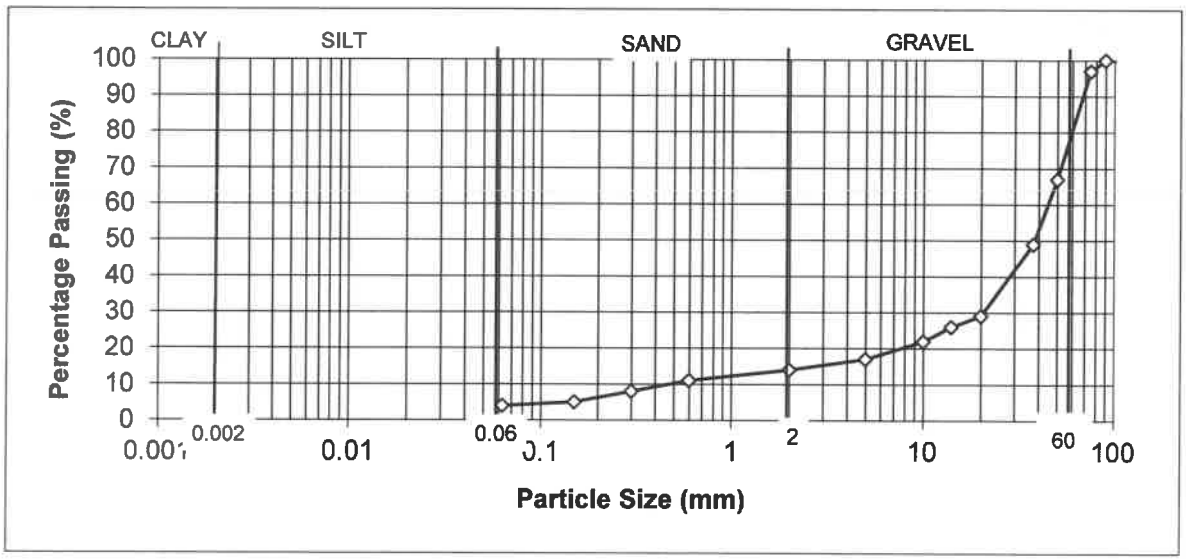
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR03	DATE SAMPLED	Not Advised
LAB SAMPLE No	98611	DATE RECEIVED	30-Apr-21
DATE TESTED	06-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	10	22	15-60
90	100	80-100	5	17	10-45
75	97	65-100	2	14	
50	67		0.6	11	0-25
37.5	49	45-100	0.3	8	
20	29		0.15	5	
14	26		0.063	4	0-12



REMARKS
Sample complies with the grading requirements for a 6F2 material (SHW 2016)
As received moisture content = 2.7%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

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MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

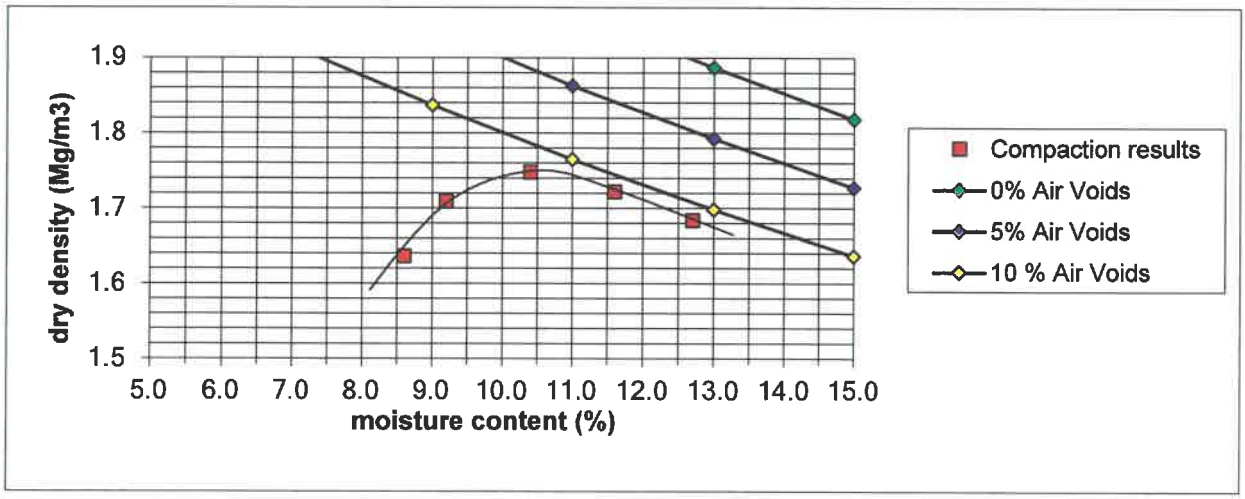
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP VIBRATING HAMMER
BS1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR03	DATE SAMPLED	Not Advised
LAB SAMPLE No	98611	DATE RECEIVED	30-Apr-21
DATE TESTED	10-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried / Separate Batches

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		8.6	1.636
2		9.2	1.709
3		10.4	1.748
4		11.6	1.722
5		12.7	1.684
	Optimum	11.0	
	Maximum		1.75
	Particle Density	2.5 (Assumed)	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 51%
Percentage of material retained on 20mm sieve = 71%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

Client.	LK Remediate Ltd
Site	LKR 21 1003 – School Street, Radcliffe

SAMPLE DETAILS

Job number.	:	MRN 4117/10
Laboratory sample number.	:	98611
Material	:	Recycled Crush
Advised Source	:	Site Won
Site mark.	:	CR03
Certificate of sampling received.	:	No
Date and time of sampling.	:	Not Advised
Date received at Laboratory.	:	30 April 2021
Date of start of test	:	10 May 2021
Sampling location.	:	Stockpile
Method of sampling.	:	BS EN 932-1 : 1997
Sampled by.	:	Client
Size Fraction	:	35% passing 14mm-retained 12.5mm 65% passing 12.5mm-retained 10mm
Mass of dry sample tested	:	5000 g
Target specification.	:	<50

RESULT

Los Angeles Coefficient	:	45

Comment

Signed

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

Date 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

ORGANIC MATTER CONTENT
(Loss on Ignition)
BS 1377: PART 3: 1990

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 – School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR03	DATE SAMPLED	Not Advised
LAB SAMPLE No	98611	DATE RECEIVED	30 April 2021
DATE TESTED	06 May 2021	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried

% Passing 2mm in sample	14	%
Loss on Ignition material passing 2mm (Avg. of 2)	5.3	%

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

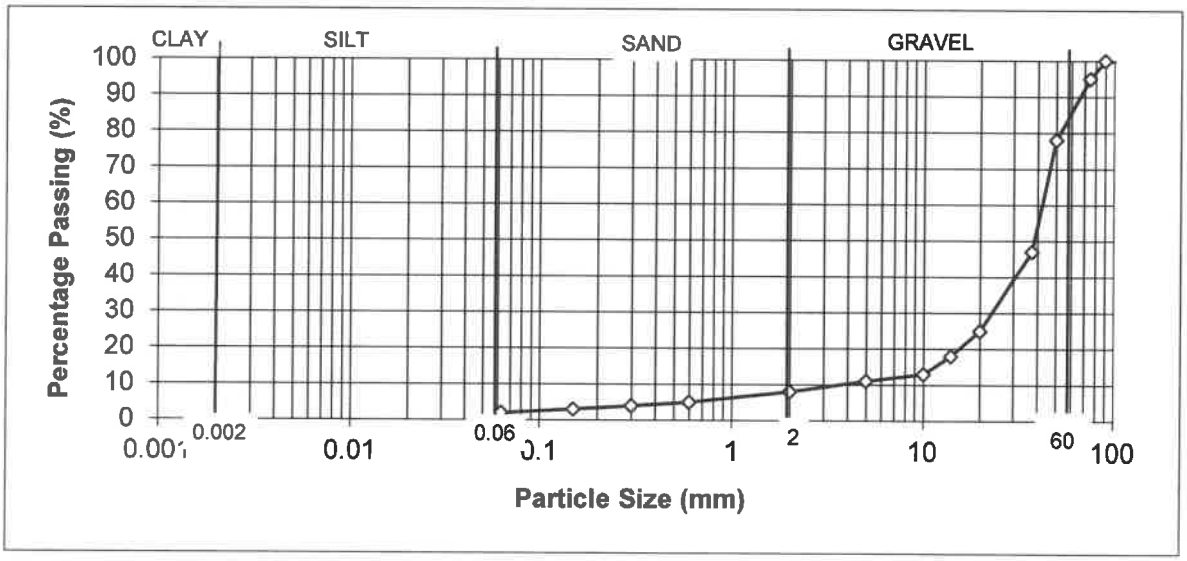
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR04	DATE SAMPLED	Not Advised
LAB SAMPLE No	98612	DATE RECEIVED	30-Apr-21
DATE TESTED	06-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	10	13	15-60
90	100	80-100	5	11	10-45
75	95	65-100	2	8	
50	78		0.6	5	0-25
37.5	47	45-100	0.3	4	
20	25		0.15	3	
14	18		0.063	2	0-12



REMARKS
Sample complies with the grading requirements for a 6F2 material (SHW 2016)
As received moisture content = 3.8%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

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MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

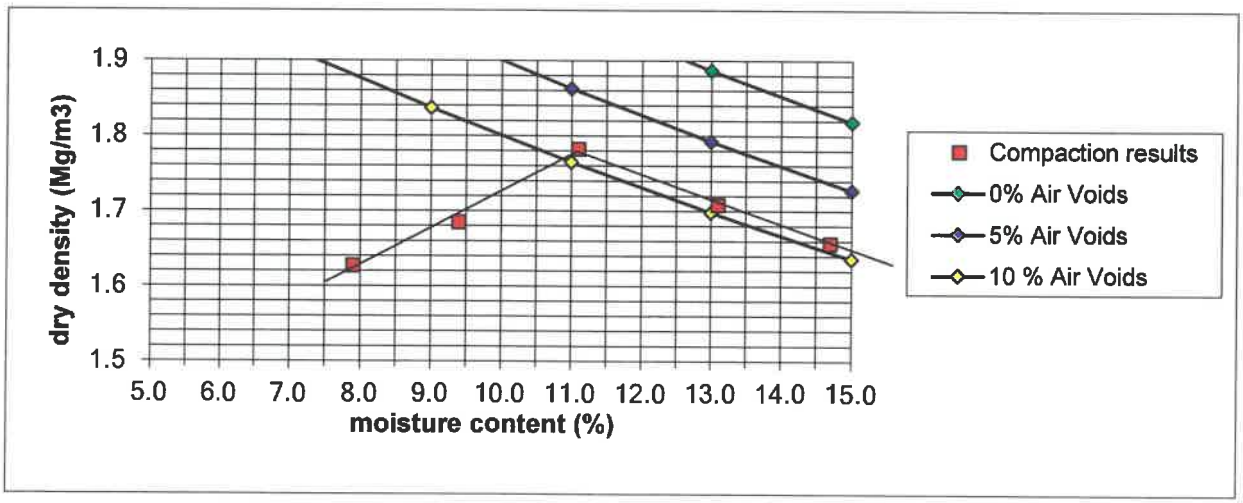
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP VIBRATING HAMMER
BS1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR04	DATE SAMPLED	Not Advised
LAB SAMPLE No	98612	DATE RECEIVED	30-Apr-21
DATE TESTED	10-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried / Separate Batches

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		7.9	1.627
2		9.4	1.685
3		11.1	1.782
4		13.1	1.708
5		14.7	1.657
	Optimum	11.0	
	Maximum		1.78
	Particle Density	2.5 (Assumed)	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 53%
Percentage of material retained on 20mm sieve = 75%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

Client. LK Remediate Ltd
Site LKR 21 1003 – School Street, Radcliffe

SAMPLE DETAILS

Job number.	:	MRN 4117/10
Laboratory sample number.	:	98612
Material	:	Recycled Crush
Advised Source	:	Site Won
Site mark.	:	CR04
Certificate of sampling received.	:	No
Date and time of sampling.	:	Not Advised
Date received at Laboratory.	:	30 April 2021
Date of start of test	:	10 May 2021
Sampling location.	:	Stockpile
Method of sampling.	:	BS EN 932-1 : 1997
Sampled by.	:	Client
Size Fraction	:	35% passing 14mm-retained 12.5mm 65% passing 12.5mm-retained 10mm
Mass of dry sample tested	:	5000 g
Target specification.	:	<50

RESULT

Los Angeles Coefficient	:	45

Comment

Signed

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

Date 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

ORGANIC MATTER CONTENT
(Loss on Ignition)
BS 1377: PART 3: 1990

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 – School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR04	DATE SAMPLED	Not Advised
LAB SAMPLE No	98612	DATE RECEIVED	30 April 2021
DATE TESTED	06 May 2021	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried

% Passing 2mm in sample	8	%
Loss on Ignition material passing 2mm (Avg. of 2)	5.3	%

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

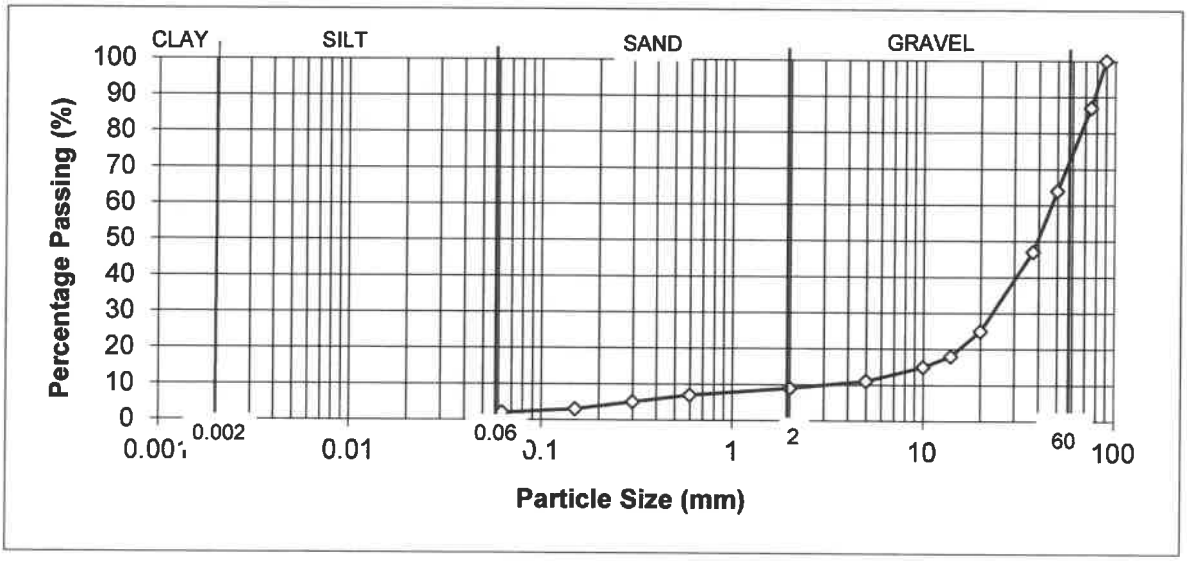
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR05	DATE SAMPLED	Not Advised
LAB SAMPLE No	98613	DATE RECEIVED	30-Apr-21
DATE TESTED	06-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	10	15	15-60
90	100	80-100	5	11	10-45
75	87	65-100	2	9	
50	64		0.6	7	0-25
37.5	47	45-100	0.3	5	
20	25		0.15	3	
14	18		0.063	2	0-12



REMARKS
Sample complies with the grading requirements for a 6F2 material (SHW 2016)
As received moisture content = 3.9%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

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MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

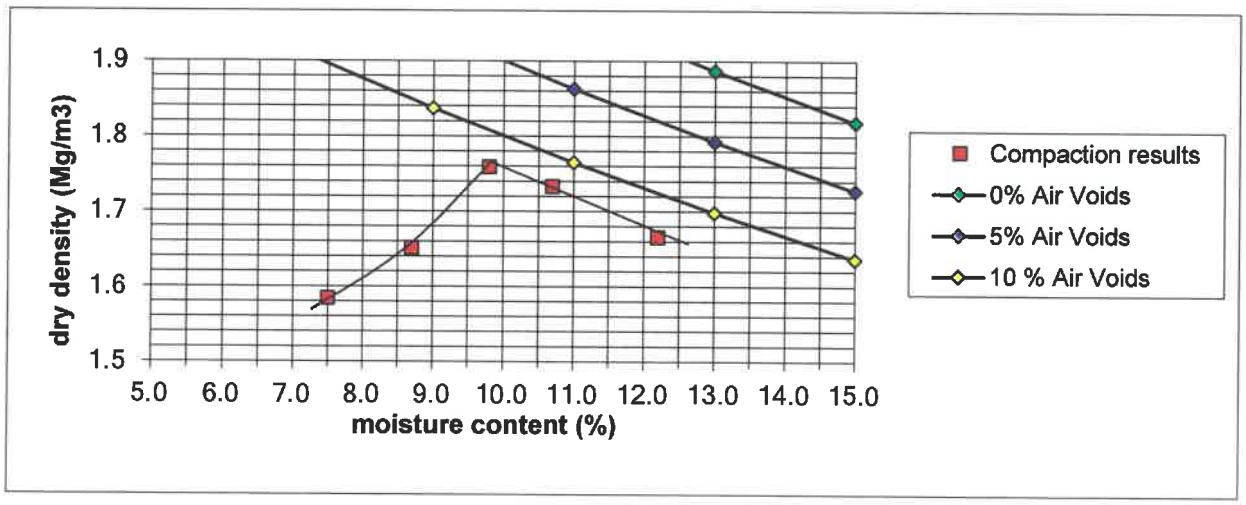
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP VIBRATING HAMMER
BS1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR05	DATE SAMPLED	Not Advised
LAB SAMPLE No	98613	DATE RECEIVED	30-Apr-21
DATE TESTED	10-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried / Separate Batches

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		7.5	1.584
2		8.7	1.651
3		9.8	1.759
4		10.7	1.733
5		12.2	1.666
	Optimum	9.8	
	Maximum		1.76
	Particle Density	2.5	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 53%
Percentage of material retained on 20mm sieve = 75%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

Client.	LK Remediate Ltd
Site	LKR 21 1003 – School Street, Radcliffe

SAMPLE DETAILS

Job number.	:	MRN 4117/10
Laboratory sample number.	:	98613
Material	:	Recycled Crush
Advised Source	:	Site Won
Site mark.	:	CR05
Certificate of sampling received.	:	No
Date and time of sampling.	:	Not Advised
Date received at Laboratory.	:	30 April 2021
Date of start of test	:	10 May 2021
Sampling location.	:	Stockpile
Method of sampling.	:	BS EN 932-1 : 1997
Sampled by.	:	Client
Size Fraction	:	34% passing 14mm-retained 12.5mm 66% passing 12.5mm-retained 10mm
Mass of dry sample tested	:	5000 g
Target specification.	:	<50

RESULT

Los Angeles Coefficient	:	47

Comment

Signed

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

Date 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

ORGANIC MATTER CONTENT
(Loss on Ignition)
BS 1377: PART 3: 1990

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 – School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR05	DATE SAMPLED	Not Advised
LAB SAMPLE No	98613	DATE RECEIVED	30 April 2021
DATE TESTED	06 May 2021	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried

% Passing 2mm in sample	9	%
Loss on Ignition material passing 2mm (Avg. of 2)	4.9	%

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING
1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

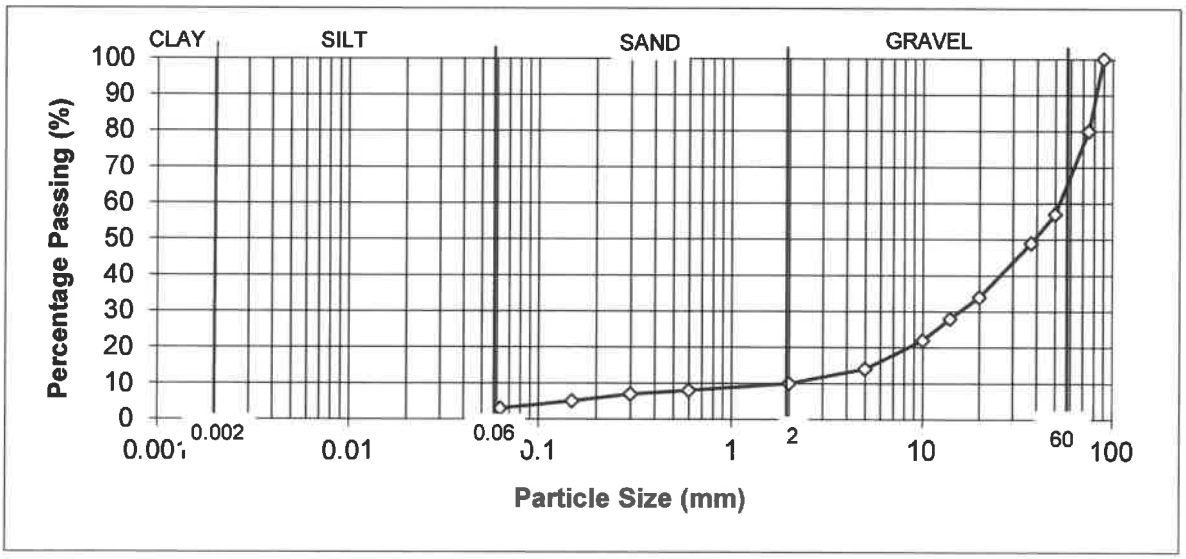
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR06	DATE SAMPLED	Not Advised
LAB SAMPLE No	98614	DATE RECEIVED	30-Apr-21
DATE TESTED	06-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	10	22	15-60
90	100	80-100	5	14	10-45
75	80	65-100	2	10	
50	57		0.6	8	0-25
37.5	49	45-100	0.3	7	
20	34		0.15	5	
14	28		0.063	3	0-12



REMARKS
Sample complies with the grading requirements for a 6F2 material (SHW 2016)
As received moisture content = 4.8%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

form omcvib

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

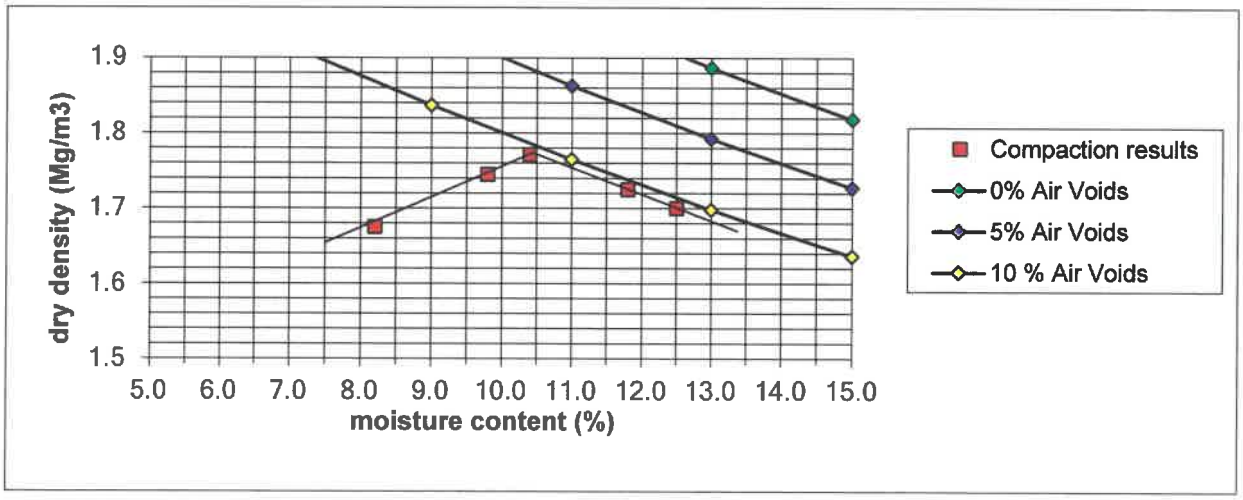
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP VIBRATING HAMMER
BS1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 - School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR06	DATE SAMPLED	Not Advised
LAB SAMPLE No	98614	DATE RECEIVED	30-Apr-21
DATE TESTED	10-May-21	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried / Separate Batches

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		8.2	1.675
2		9.8	1.745
3		10.4	1.771
4		11.8	1.725
5		12.5	1.7
	Optimum	10.0	
	Maximum		1.77
	Particle Density	2.5	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 51%
Percentage of material retained on 20mm sieve = 66%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 27-May-21

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

Client. LK Remediate Ltd
Site LKR 21 1003 – School Street, Radcliffe

SAMPLE DETAILS

Job number.	:	MRN 4117/10
Laboratory sample number.	:	98614
Material	:	Recycled Crush
Advised Source	:	Site Won
Site mark.	:	CR06
Certificate of sampling received.	:	No
Date and time of sampling.	:	Not Advised
Date received at Laboratory.	:	30 April 2021
Date of start of test	:	10 May 2021
Sampling location.	:	Stockpile
Method of sampling.	:	BS EN 932-1 : 1997
Sampled by.	:	Client
Size Fraction	:	38% passing 14mm-retained 12.5mm 62% passing 12.5mm-retained 10mm
Mass of dry sample tested	:	5000 g
Target specification.	:	<50

RESULT

Los Angeles Coefficient	:	45

Comment

Signed

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

Date 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

Client. LK Remediate Ltd
Site LKR 21 1003 – School Street, Radcliffe

SAMPLE DETAILS

Job number.	:	MRN 4117/10
Laboratory sample number.	:	98614
Material	:	Recycled Crush
Advised Source	:	Site Won
Site mark.	:	CR06
Certificate of sampling received.	:	No
Date and time of sampling.	:	Not Advised
Date received at Laboratory.	:	30 April 2021
Date of start of test	:	10 May 2021
Sampling location.	:	Stockpile
Method of sampling.	:	BS EN 932-1 : 1997
Sampled by.	:	Client
Size Fraction	:	38% passing 14mm-retained 12.5mm 62% passing 12.5mm-retained 10mm
Mass of dry sample tested	:	5000 g
Target specification.	:	<50

RESULT

Los Angeles Coefficient	:	45

Comment

Signed

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

Date 27 May 2021

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

ORGANIC MATTER CONTENT
(Loss on Ignition)
BS 1377: PART 3: 1990

CLIENT	LK Remediate Ltd
SITE	LKR 21 1003 – School Street, Radcliffe
JOB NUMBER	MRN 4117/10

SAMPLE LABEL	CR06	DATE SAMPLED	Not Advised
LAB SAMPLE No	98614	DATE RECEIVED	30 April 2021
DATE TESTED	06 May 2021	SAMPLED BY	Client

MATERIAL	Recycled Crush
ADVISED SOURCE	Site Won
PRE TREATMENT	Air Dried

% Passing 2mm in sample	10	%
Loss on Ignition material passing 2mm (Avg. of 2)	4.6	%

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 27 May 2021

APPENDIX F

EDGE SI Report
July 2024

+44 (0) 161 834 1938

www.edgece.com

3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester M3 5BQ, United Kingdom

Document name: 211196-EDGE-XX-XX-RP-G-0005_SI REPORT [P01]

SITE INVESTIGATION REPORT FOR 211196- SCHOOL STREET, RADCLIFFE

12 July 2024

Prepared for:
Hive Homes (Greater Manchester) LLP
2a Derwent Avenue
Manchester
M21 7QP

Geo-environmental

Revision	Date	Description	Prepared by	Checked by	Approved by
01	12/07/24	SI Letter Report	TM	JC	AJB

BACKGROUND

Alliance Design UK Ltd t/a EDGE Consulting Engineers ("EDGE") has been appointed by Hive Homes to undertake a supplementary site investigation at a proposed new Hive Homes (Greater Manchester) LLP development at land located adjacent to School Street, Radcliffe.

The site was formerly occupied by a school, with the buildings having been demolished and ground enabling works undertaken.

The site is proposed to be redeveloped with 90 residential properties, with associated gardens and access roads as shown on the MCK Associates Limited Drawing No 21-039 PL01 Rev Z, presented in Annex I.

The site has been the subject of numerous phases of third-party and EDGE investigations prior to, and post remediation. However, further assessment is required in order to clarify foundation design across the site as well as additional chemical testing of stockpiles remaining from the remediation works.

PREVIOUS INVESTIGATION AND REMEDIATION WORKS

The site has been the subject of numerous phases of third-party investigations as presented in the following documents:

- REC, Phase 1 and 2 Geo-environmental Site Investigation Report, Ref: 46009P1R0 dated April 2015;
- LK Consult, Desk Based Coal Mining Risk Assessment Report, Ref: CL-602-LKC-20 1836-01 dated December 2020;
- The Land Consultancy Limited, Report on Coal Mining Related Site Investigation Works, Ref: T10 SFK (TLC1135) dated January 2021;
- LK Consult, Addendum Gas Risk Assessment and Updated Remediation Strategy Report, Ref: CL-602-LKC-20 1836-02 dated January 2021.

Prior to remediation, ground conditions at the site were found to comprise made ground to a depth of up to 1.7 m below ground level (bgl) comprising sand / sandy gravel with fragments of brick, ash and clinker. Buried structures were also encountered associated with former building footings etc.

Remediation and enabling works have been undertaken at the site, as detailed in the following report:

- LK Consult, Enabling Works Verification Report, Report Ref; LKR211003_VR dated September 2021.

As part of the site enabling works, a programme of drilling and grouting was undertaken to identify potential coal workings beneath the site, as detailed in the following report:

- AARSLEFF Factual Report 'Drilling and Grouting for New Housing Plots at School Street, Radcliffe', Report Ref: 200112 Rev 02 dated August 2021.

Enabling works were undertaken at the site in 2021, comprising the following:

- Soft strip, asbestos removal and demolition of existing buildings;

- Break out and crushing of hardstanding and relic foundations;
- Excavation of made ground and below ground structures, re-engineering of soils to formation level;
- Excavation, haulage, assessment and management of potentially contaminated materials;
- Disposal of unsuitable materials;
- Contamination watching brief.

The enabling works were completed under full time supervision of the remediation contractor site manager with support / part time supervision by a geo-environmental engineer.

EDGE was appointed by Hive Homes to undertake a technical review of the existing information to assess whether any environmental or geotechnical liabilities may impact the proposed development and to assess whether the reports satisfy planning conditions relating to contaminated land, published in the following report:

- EDGE Geo-environmental Review Report, School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0003_GEO REVIEW [P01], dated April 2024.

EDGE was also appointed to undertake supplementary trial pitting in two areas where trees were present which were not turned over during the enabling works. This was undertaken in order to assess the ground conditions to further assess any environmental or geotechnical liabilities in these areas, as detailed in the following report:

- EDGE Site Investigation Letter Report, School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0001_SI REPORT [P01], dated February 2022.

During the supplementary site investigation, made ground was encountered at depths ranging from 0.3 to 2.1 m bgl, and comprised both cohesive and granular soils. Natural strata comprising cohesive and granular soils were encountered at depths ranging from 0.3 to 3.4 m, however, the base of this strata was not proven.

Additionally, in May 2024, EDGE was appointed to undertake a supplementary site investigation consisting of twelve trial pits and five window sample boreholes. This was undertaken in order to ascertain depths of remediated fill and characterise the underlying natural soils for additional structural design, as detailed in the following report:

- EDGE Site Investigation Letter Report, School Street, Radcliffe, Report Ref 21196 -EDGE-XX-XX-RP-G-0004_SI REPORT [PO1], dated May 2024.

During the supplementary site investigation, made ground was encountered at depths ranging from 0.3 to 1.5 m, overlying locally very soft to soft and generally stiff silty sandy gravelly clay and loose to generally medium dense, dense and very dense granular soils comprising clayey gravelly sand, clayey sandy gravel and clayey silty sand.

Groundwater was encountered during the investigation at depths ranging from 0.30 m to 4.20 m.

Laboratory testing showed the volume change potential of the cohesive soils to be **'**Low'.

FIELDWORK

EDGE has been appointed to undertake a supplementary site investigation to further characterise the underlying natural soils for additional structural design as well as additional chemical testing of site won clay and subsoil stockpiles in accordance with the requirements set out in the LK Consult Remediation Strategy.

EDGE attended the site on the 25th June 2024 to supervise the excavation of nine trial pits (ETP301 to ETP309) to depths ranging from 2.6 to 3.8 m using a tracked excavator.

The appointed structural engineer, Seddon Construction and vibro ground improvement contractor requested further investigations to be undertaken in the areas of Plots 35 to 49, 69 to 75 and 80 to 87 in order to further clarify foundation design.

Trial pits ETP301, ETP308 and ETP309 targeted areas near Plots 37 to 49, ETP307 targeted the area of Plots 69 to 75 and ETP304 to ETP306 targeted Plots 80 to 90. The remaining trial pits were located to establish ground conditions beneath road footprints.

Where possible, a hand shear vane was used to record the strength of cohesive soils within the trial pits.

The trial pits were backfilled with arisings upon completion.

The exploratory hole location plan is presented in Annex I with exploratory hole logs presented in Annex II.

GROUND CONDITIONS

Made ground was encountered in all of the trial pits to depths ranging from 0.4 to 1.4 m comprising (locally) clayey ashy gravelly sand, clayey sandy gravel and (locally) clayey silty sandy gravel. The gravel comprised concrete, red brick, sandstone, coal, mudstone, clinker and limestone. Cobbles of concrete, mudstone and brick, along with fragments of plastic, metal and wood as well as bands of ash were encountered locally.

Natural strata were encountered in all of the exploratory locations at depths ranging from 0.40 to 1.50 m comprising both cohesive and granular soils.

The granular strata comprised clayey sand, clayey gravelly sand, silty sand & gravel and (locally) gravelly sand, with the gravel comprising mudstone, quartzite and sandstone.

The cohesive strata comprised clay and sandy (locally) gravelly clay with the gravel comprising mudstone, coal and quartzite.

Cobbles of mudstone were encountered throughout the natural soils of ETP302, ETP303, ETP304, ETP307 and ETP308.

Groundwater was encountered during the investigation within the natural strata in seven exploratory locations (ETP301, ETP302, ETP303, ETP304, ETP305, ETP306 and ETP307), at depths ranging from 0.3 to 3.4 m.

Solid strata were not encountered during the investigation.

Trial pits ETP301, ETP302 and ETP309 were terminated at depths of 3.2 m, 2.8 m and 2.4 m respectively due to sidewall collapse within the natural sand deposits indicating these soils to be in a loose condition. ETP303 was terminated at a depth of 2.6 m due to a rapid influx of groundwater.

LABORATORY ANALYSIS

An excess of materials was generated during the enabling works with three stockpiles (BB1 to BB3) of surplus soils remaining at the site, comprising the following:

- BB1 comprises 876 m^3 of site won 6F2;
- BB2 comprises 495 m^3 of site won clay;
- BB3 comprises 838 m^3 of site won subsoil.

The above surplus soil stockpiles (locations shown on BEAM drawing No 02-08-21 in Annex I) were tested by the remediation contractor and shown to be suitable for re-use. However, only two samples of the site won clay and subsoil were tested. A minimum of three samples should be tested for each material to characterise whether the soils are suitable for re-use. Three samples of the 6F2 from stockpile BB1 were tested for chemical and geotechnical analysis and these soils are suitable for re-use with no further testing required.

In order to further assess the suitability of the existing stockpiles for re-use and to fulfil the minimum testing requirements, one representative sample was taken from stockpile BB2 and one from stockpile BB3.

The samples were delivered to the laboratories of EnviroLab Limited, Hyde for selected chemical analyses. All testing was undertaken to MCERTS standard (where available).

The samples were tested for pH, metals (As, Cd, Cu, Pb, Ni, Zn, Cr, Cr^{VI}, Se, Hg), water soluble boron, total cyanide, speciated polycyclic aromatic hydrocarbons (PAH), total organic carbon, total phenols, total sulphate, water soluble sulphate and asbestos identification.

Copies of the chemical test results are presented in Annex III.

CONTAMINATION ASSESSMENT

At a Tier 1 stage the long-term human health toxicity of the soil has been assessed with reference to the LQM/CIEH S4ULs for Human Health Risk Assessment, 2015. Where S4ULs are absent (ie for lead) C4SLs published by CL:AIRE have been utilised. As the proposed development will comprise residential properties, with associated gardens and access roads, the results have been compared against Soil Screening Values (SSVs) which are for a residential end use with plant uptake.

The Total Organic Carbon (TOC) concentrations recorded in the soil samples were 5.9 and 7.6 %. As such, the results were assessed against SSVs (where relevant) for 6 % soil organic matter.

The test results indicate that none of the inorganic determinands tested were above their respective SSVs when compared to values generated for a residential end-use with homegrown produce.

No asbestos was identified in either of the samples tested.

However, exceedances of three PAH compounds were recorded in the sample taken from stockpile BB2.

An elevated concentration of benzo(a)pyrene was recorded with a value of 3.87 mg/kg compared to the S4UL value of 3.00 mg/kg. However, this is below the C4SL value for benzo(a)pyrene which is 5.00 mg/kg and therefore this result is not considered significant.

In addition to the above, elevated concentrations of benzo(b)fluoranthene (4.44 mg/kg) and dibenzo(ah)anthracene (0.42 mg/kg) were recorded against their respective S4ULs of 3.70 mg/kg and 0.30 mg/kg.

Using benzo(a)pyrene as a surrogate marker for carcinogenic PAHs as per Health Protection Agency and CL:AIRE guidelines, EDGE has undertaken an assessment of the data from the three samples taken from this stockpile (including from the LK Consult report), as presented in Annex IV. All the data points that could be used to calculate ratios fell within the upper or lower limits. Based on this distribution of data, EDGE considers that benzo(a)pyrene can be used as a surrogate marker for carcinogenic PAHs (including benzo(a)anthracene, benzo(b)fluoranthene and dibenzo(ah)anthracene, and the C4SL criteria is suitable for this dataset.

Given that the concentrations of benzo(a)pyrene in all three samples from stockpile BB2 are below the C4SL value, the soils from this stockpile can be considered suitable for re-use as subsoil in gardens at the development.

The results from the two phases of testing of soils from stockpile BB3, also indicate that these soils are suitable for re-use as subsoil in gardens at the development.

IN-SITU GEOTECHNICAL TESTING

Thirty-six in-situ hand shear vane tests were undertaken within the cohesive strata (clay) at depths between 1.95 and 3.55 m within the soils excavated from the trial pits, recording results ranging from between 58 kPa and 161 kPa, indicating these soils to be of 'Medium', 'High' and 'Very High' strength.

The trial pits undertaken in the granular soils collapsed in several locations, indicating these soils to be in a 'Loose' condition.

CONCLUSIONS

EDGE has undertaken a supplementary intrusive site investigation comprising the excavation of nine trial pits in order to characterise the underlying natural soils for additional structural design purposes.

In vicinity of Plots 37 to 49, made ground was encountered up to a depth of 1.2 m, underlain by natural sand (loose in places) to depths ranging from 2.4 to 3.2 m. In ETP308 (adjacent to Plot 49), the sand was underlain by stiff / high strength clay from 3.2 to 3.5 m.

In the south of the site, ground conditions were found to comprise sand interbedded with firm becoming stiff clay.

A copy of this report should be sent to the appointed structural engineer in order to refine the foundation zoning plan, as well as the appointed vibro ground improvement contractor for comment.

The supplementary testing of stockpiles BB2 and BB3 shows that these soils are suitable for re-use in gardens at the development.

We trust the above is to your satisfaction. Should you require any further information, please do not hesitate to contact the undersigned.

Yours sincerely,



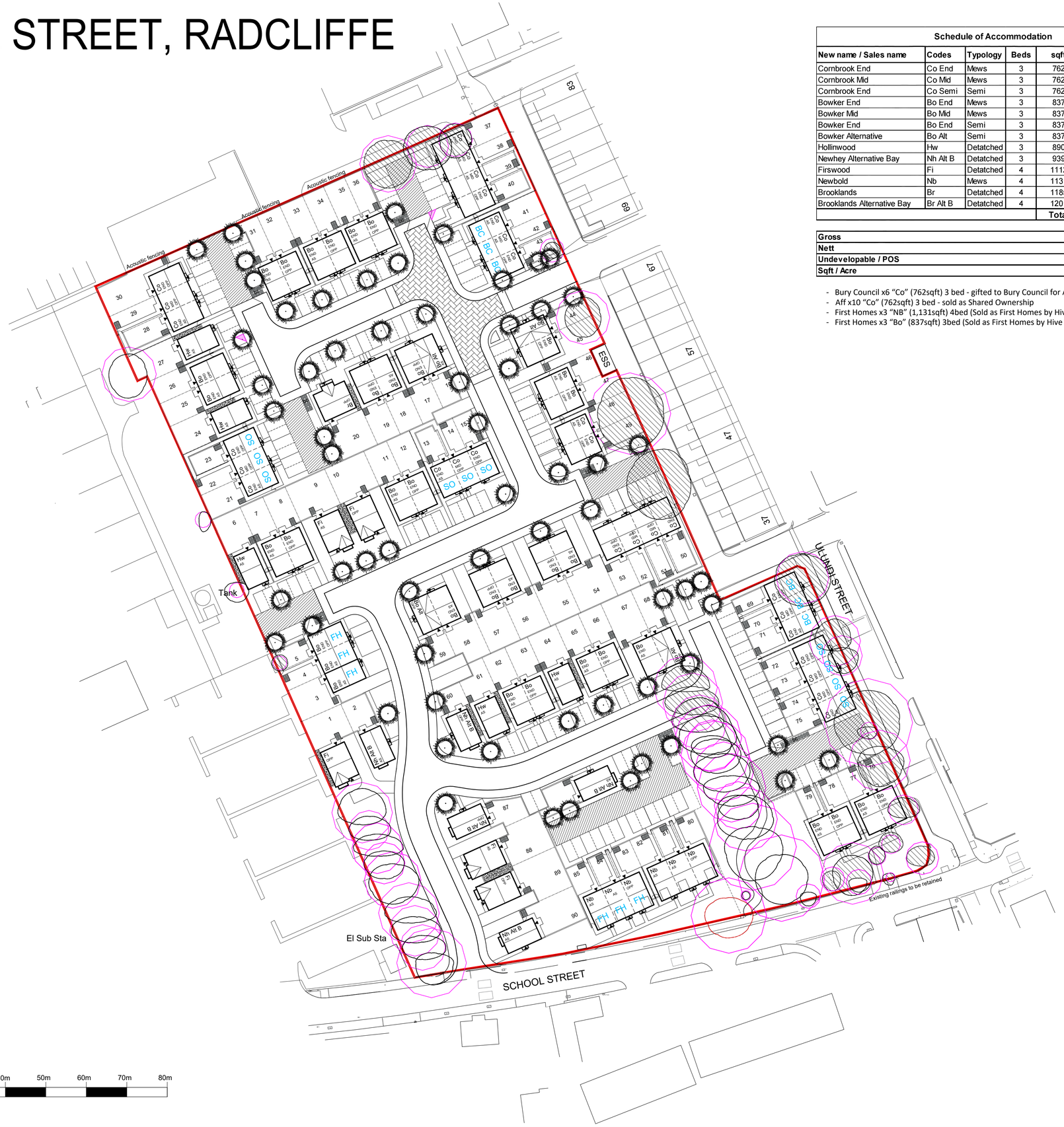
On behalf of EDGE Consulting Engineers	12/07/2024 Date

Annex I	Drawings
Annex II	Exploratory Hole Logs
Annex III	Laboratory Chemical Test Results
Annex IV	PAH Profiling

ANNEX I

Drawings

SCHOOL STREET, RADCLIFFE



0m 10m 20m 30m 40m 50m 60m 70m 80m

1 : 500

Schedule of Accommodation						
New name / Sales name	**Codes**	**Typology**	**Beds**	**sqft**	**Total**	**Total Sqft**
Cornbrook End	Co End	Mews	3	762	16	12192
Cornbrook Mid	Co Mid	Mews	3	762	11	8382
Cornbrook End	Co Semi	Semi	3	762	2	1524
Bowker End	Bo End	Mews	3	837	2	1674
Bowker Mid	Bo Mid	Mews	3	837	1	837
Bowker End	Bo End	Semi	3	837	32	26784
Bowker Alternative	Bo Alt	Semi	3	837	4	3348
Hollinwood	Hw	Detatched	3	890	5	4450
Newhey Alternative Bay	Nh Alt B	Detatched	3	939	5	4695
Firswood	Fi	Detatched	4	1112	5	5560
Newbold	Nb	Mews	4	1131	6	6786
Brooklands	Br	Detatched	4	1185	1	1185
Brooklands Alternative Bay	Br Alt B	Detatched	4	1201	0	0
				Total	**90**	**77417**

Gross	**5.74**	**ACRES**
Nett	**5.04**	**ACRES**
Undevelopable / POS	**0.7**	**ACRES**
Sqft / Acre	**15360.52**	**ACRES**

- Bury Council x6 “Co” (762sqft) 3 bed - gifted to Bury Council for Affordable Rent
- Aff x10 “Co” (762sqft) 3 bed - sold as Shared Ownership
- First Homes x3 “NB” (1,131sqft) 4bed (Sold as First Homes by Hive Homes)
- First Homes x3 “Bo” (837sqft) 3bed (Sold as First Homes by Hive Homes)

general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and specifications relating to the job whether or not indicated on the drawing.
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KEY

- Land Ownership
- Existing trees to be removed
- Indicative planting
- Indicative hedging
- Denotes shared drives
- Denotes raised table
- Retained tree - see tree report for catagory
- root protection area
- Denotes clean stone
- BC — Gifted housing to Bury Council for affordable rent
- FH — Housing for First Homes.
- SO — Housing for shared ownership

Rev.	Date	By	Description
Z	15.04.2024	WL	Update layout: patios all amended, bins & clean stone areas shown
Y	05.03.2024	AT	Update layout: parking provision and bin storage provision Northern boundary fence amended. -Layout small comments tidied up
X	03.01.2024	WL	Plot 30 northern red edge amended
W	03.01.2024	WL	Sub-station excluded from red edge. New red boundary.
V	20.10.2023	WL	Shared ownership text changed to affordable rent in key and under schedule.
U	16.08.2023	WL	Knee rail added to 2 no. between drive & footpath. 0.5m added for this after drive
T	15.08.2023	WL	Knee rail added in front of 76 path for 76-79 increased to 1.2m
S	15.08.2023	WL	Drive amended for plots 5, 31 & 38
R	14.08.2023	WL	Footpath & knee rail added to front of 76-79 to utilise 2nd gateway
Q	09.08.2023	WL	Plot 80, 81 & 82 FH amended to plots 3, 4 & 5
P	14.07.2023	WL	amended location of affordable tenures. Garages removed
N	17.04.2023	CT	amended location of affordable tenures
M	05.04.2023	WL	Trees retained at left of entrance
L	28.03.2023	CT	Amended road in front of plots 86
K	27.03.2023	CT	Amended access and plots to south
J	23.03.2023	CT	Caddied up amends and additional changes to plots 12 - 21
I	27.02.2023	CT	Sketch insert showing changes following planners comments
H	19.01.2023	MHR	2m high bund added with heavy duty fence
G	28.11.2022	WL	BC, FH, AFF marked on. Key updated
F	14.03.2022	AT	Amended turning heads to ease access for refuse vehicle.
E	22.02.2022	AT	Changed gifted plots from 62-65 to plots 55-57 following email.
D	18.02.2022	AT	Amended units 12-17 and 51-57. Also updated key for marked units.
C	27.01.2022	WL	Amended kerbs & road widths at turning head between 83-84
B	18.01.2022	WL	Amended drives in front of 80-87
A	17.01.2022	CT	Amended plot 42, 73. added a raised table. extended turning head towards plot 44

Client:

Hive HOMES

mck associates limited
architecture ‖ building surveying ‖ urban design
burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk

Project:
SCHOOL STREET
RADCLIFFE

Drawing Title:
PROPOSED LAYOUT

Drawn:	Checked:	Scale:	Date:
C.T		1:500	NOV 2021
Job No:		Drawing No:	Rev:
21-039		PL01	Z

A1

PLANNING



STOCKPILE VOLUMES 02-08-21PROJECTION TO features			
String	Volumes		
	Cut/Material	Fill/Void	Balance
BB1	876.27	0.01	876.27
BB2	494.86	0.00	494.86
BB3	837.84	0.00	837.84

Banks Engineering And Management Ltd

Revisions:

Rev.	Date	Description	By
A	04/08	FEATURES UPDATED	AB

Project:
School Lane

Drawing Title:
02-08-21 Topo Survey

Drawing Ref No:
SCL001

Drawn/Surveyed By:
AB

Date:02-08-21

Scale at A1:
1:500

Notes:

Volumes and levels surveyed to OSGB15

FOR INFORMATION ONLY



N

W E

S

KEY:

ETP301	EDGE TP LOCATION JUNE 2024
EWS01	EDGE WS BH LOCATION MAY 2024
ETP201	EDGE TP LOCATION MAY 2024
ETP1	EDGE TP LOCATION FEBRUARY 2022

Rev	Date	Description	By	Chk
P01	02.07.24	PRELIMINARY - Issued for Information	F.S.	A.B.

EDGE CONSULTING ENGINEERS
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DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
SCHOOL STREET
RADCLIFFE

Client
HIVE HOMES

Designed	Drawn	Checked	Scale @ A1
F.S.	F.S.	A.B.	1:500

Drawing Title
EDGE EXPLORATORY HOLE LOCATION PLAN

Project No.
211196

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
211196-EDGE-XX-XX-DR-G-1003

Revision
P01

FILENAME

PLOT DATE

0 mm 10 20 30 40 50

ANNEX II

Exploratory Hole Logs

	Project Title: School Street, Radcliffe		ETP301
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.561523	E Coord: -2.333151
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
			-0.30		0.30	MADE GROUND: Grass over brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, concrete, red brick, clinker and coal. Occasional cobbles of red brick and concrete. Frequent fragments of plastic and metal. Frequent rootlets.	
					1.00	MADE GROUND: Black slightly ashy slightly gravelly clayey fine to coarse SAND. Gravel is subangular fine to coarse of red brick, concrete, sandstone and mudstone. Frequent fragments of plastic and metal. 0.30 - 0.45 Band of ash encountered from 0.30 to 0.45 m.	
			-1.20		1.20	Light brown slightly clayey fine to coarse SAND.	
					2.00		
					3.00		
			-3.20		3.20	End Of Trial Pit At 3.20 m	
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Steady groundwater influx encountered at 2.7 m. TP unstable from 2.8 m. TP collapsed at 3.2 m.TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP302
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.561267	E Coord: -2.33368
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
			-0.30		0.30	MADE GROUND: Grass over brown slightly silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, concrete, red brick and coal. Occasional cobbles of red brick and concrete. Frequent rootlets.	
			-0.60		0.60	MADE GROUND: Brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, concrete and red brick. Occasional cobbles of red brick and concrete.	
						MADE GROUND: Brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone and sandstone. (REWORKED NATURAL).	
					1.00	0.80 - 0.90 Relict land drain encountered from 0.80 to 0.90 m.	
						Light brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and quartzite. Rare cobbles of mudstone.	
					2.00		
			-2.80		2.80	End Of Trial Pit At 2.80 m	
					3.00		
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Steady groundwater influx encountered at 0.8 and 2.5 m. TP unstable from 2.5 m. TP collapsed at 2.8 m.TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP303
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.560739	E Coord: -2.333291
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
					1.00	MADE GROUND: Brown slightly silty clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, concrete, red brick and clinker. Frequent cobbles of red brick, concrete and mudstone.	▼
			-1.40		1.40		
					2.00	Brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse of mudstone, quartzite and sandstone. Frequent cobbles of mudstone.	
			-2.60		2.60	End Of Trial Pit At 2.60 m	
					3.00		
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Rapid groundwater influx encountered at 0.6 m. TP unstable from 1.8 m. TP terminated at 2.6 m.TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

EDGE CONSULTING ENGINEERS	Project Title: School Street, Radcliffe		ETP304
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.560234	E Coord: -2.33316
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Depth (m)	Description	Water
					MADE GROUND: Grass over dark brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, red brick, limestone, clinker and concrete.	
			-0.60	0.60		
					Black becoming grey slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.	
				1.00		
			-1.80	1.80		
		V=73 kPa			Firm becoming stiff brown mottled grey very sandy CLAY. Sand is fine to coarse.	
		V=85 kPa		2.00		
		V=88 kPa				
		V=88 kPa				
		V=102 kPa				
			-2.70	2.70		
					Light brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and quartzite. Rare cobbles of mudstone.	
				3.00		
		V=117 kPa			Stiff becoming very stiff brown mottled grey CLAY.	
		V=123 kPa				
		V=146 kPa				
		V=153 kPa				
		V=161 kPa				
			-3.60	3.60		
					End Of Trial Pit At 3.60 m	
				4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Slow groundwater intrusion encountered at 2.5 m. TP stable. TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP305
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.559986	E Coord: -2.332612
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
						MADE GROUND: Grass over dark brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, red brick, clinker and concrete.	
			-0.50		0.50		
						Black becoming grey slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.	▼
					1.00		
			-1.90		1.90		
		V=88 kPa			2.00	Stiff brown mottled grey slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of mudstone and quartzite.	
		V=102 kPa					
		V=110 kPa					
		V=117 kPa					
		V=117 kPa					
		V=126 kPa					
		V=134 kPa					
		V=134 kPa			3.00		
			-3.10		3.10	Grey fine to coarse SAND.	▼
			-3.60		3.60	End Of Trial Pit At 3.60 m	
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Groundwater encountered at 0.7 m and running sand encountered at 3.4 m.TP stable. TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP306
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.560376	E Coord: -2.332535
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
						MADE GROUND: Grass over dark brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, red brick, clinker and concrete.	▼
			-0.60		0.60	0.45 - 0.55 Relict land drain encountered from 0.45 to 0.55 m.	
						Black slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone.	
					1.00		
					2.00		
			-2.10		2.10	Firm becoming stiff brown mottled grey sandy CLAY. Sand is fine to coarse.	
		V=58 kPa					
		V=73 kPa					
		V=79 kPa					
		V=88 kPa					
		V=93 kPa					
		V=99 kPa					
		V=99 kPa			3.00		
						Grey fine to coarse SAND.	
			-3.50		3.50	End Of Trial Pit At 3.50 m	
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Rapid groundwater intrusion encountered at 0.3 m. TP stable. TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP307
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.560492	E Coord: -2.331967
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
						MADE GROUND: Brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, red brick, clinker and concrete. Frequent fragments of wood and metal. Frequent cobbles of red brick, concrete and mudstone.	
					1.00	Grey slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and quartzite.	▼
					2.00	Grey clayey fine to coarse SAND.	
		V=58 kPa V=66 kPa V=73 kPa V=70 kPa V=88 kPa V=111 kPa V=123 kPa	-2.60		2.60	Firm becoming stiff grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of mudstone and quartzite.	
			-3.50		3.50	Grey clayey fine to coarse SAND.	
			-3.80		3.80	End Of Trial Pit At 3.80 m	
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

TP scanned with CAT. Steady groundwater intrusion encountered at 1.3 m. TP stable. TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP308
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.560932	E Coord: -2.33256
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
					1.00	MADE GROUND: Brown clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of mudstone, sandstone, red brick, coal and concrete. Frequent cobbles of red brick and concrete. Occasional fragments of metal and plastic.	
			-1.80		1.80	Yellowish brown clayey fine to coarse SAND.	
					2.00	Grey clayey fine to coarse SAND.	
					3.00		
		V=131 kPa V=143 kPa V=146 kPa V=152 kPa	-3.10		3.10	Stiff becoming very stiff grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mudstone and coal. Occasional cobbles of mudstone.	
			-3.50		3.50	End Of Trial Pit At 3.50 m	
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
TP scanned with CAT. TP stable. TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

	Project Title: School Street, Radcliffe		ETP309
	Project Number: 211196	Client: Hive Homes	Sheet 1 Of 1
	GL (mAOD): 0.00	N Coord: 53.561214	E Coord: -2.332948
Date: 25/06/2024	Method: Tracked Excavator	Logged By: TM	Scale: 1:20

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
						MADE GROUND: Brown slightly ashy slightly gravelly fine to coarse SAND. Gravel is subangular fine to coarse of mudstone, sandstone, concrete and red brick.	
						0.25 - 0.35 Band of ash encountered from 0.25 to 0.35 m.	
			-0.40		0.40		
						Light brown gravelly fine to coarse SAND. Gravel is subrounded fine to coarse of mudstone, quartzite and sandstone.	
					1.00		
					2.00		
			-2.40		2.40		
						End Of Trial Pit At 2.40 m	
					3.00		
					4.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
TP scanned with CAT. TP unstable from 1.7 m. TP collapsed at 2.4 m.TP backfilled with arisings.

Printed By GeoLogs (www.GeoLogs.com)

ANNEX III

Laboratory Chemical Results

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/06457
Issue Number: 1 **Date:** 08 July, 2024

Client: Edge Consulting Engineers
3rd Floor
Conavon Court
12 Blackfriars Street
Manchester
M3 5BQ

Project Manager: Andrew Bain; Jonathan Cummins
Project Name: School Street, Radcliffe
Project Ref: 211196
Order No: PO-0753
Date Samples Received: 27/06/24
Date Instructions Received: 01/07/24
Date Analysis Completed: 08/07/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/06457

Client Project Name: School Street, Radcliffe

Client Project Ref: 211196

Lab Sample ID	24/06457/7	24/06457/8						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BB2	BB3								
Depth to Top										
Depth To Bottom										
Date Sampled	25-Jun-24	25-Jun-24								
Sample Type	SOIL - D	SOIL - D								
Sample Matrix Code	4AE	4AE								
% Stones >10mm$_A$	17.8	3.4						% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.02	7.93						pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.02	0.08						g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D$$^{M\#}$	760	810						mg/kg	200	A-T-028s
Cyanide (total)$_A$$^{M\#}$	<1	<1						mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2						mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$$^{M\#}$	5.90	7.60						% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	16	15						mg/kg	1	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	<1.0	<1.0						mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.6	<0.5						mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	69	57						mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	16	16						mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1						mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	123	139						mg/kg	1	A-T-024s
Mercury$_D$	0.19	<0.17						mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	19	17						mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1						mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	97	122						mg/kg	5	A-T-024s

Envirolab Job Number: 24/06457

Client Project Name: School Street, Radcliffe

Client Project Ref: 211196

Lab Sample ID	24/06457/7	24/06457/8						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BB2	BB3								
Depth to Top										
Depth To Bottom										
Date Sampled	25-Jun-24	25-Jun-24								
Sample Type	SOIL - D	SOIL - D								
Sample Matrix Code	4AE	4AE								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD								A-T-045
Asbestos Matrix (visual)$_{D}$	-	-								A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A								A-T-045

Envirolab Job Number: 24/06457

Client Project Name: School Street, Radcliffe

Client Project Ref: 211196

Lab Sample ID	24/06457/7	24/06457/8						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BB2	BB3								
Depth to Top										
Depth To Bottom										
Date Sampled	25-Jun-24	25-Jun-24								
Sample Type	SOIL - D	SOIL - D								
Sample Matrix Code	4AE	4AE								
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.38	0.16						mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.07	0.03						mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.83	0.27						mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	4.17	1.14						mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	3.87	1.21						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	4.44	1.42						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	1.83	0.73						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	1.66	0.58						mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	3.94	1.34						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.42	0.16						mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	9.10	2.33						mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.22	0.08						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	1.98	0.71						mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.06	0.04						mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	3.35	1.22						mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	7.88	2.08						mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	44.2	13.5						mg/kg	0.01	A-T-019s

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
N/A	Not applicable

Asbestos

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
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. 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) quantification by sedimentation is performed. 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.

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: Edge Consulting Engineers , 3rd Floor, Conavon Court, 12 Blackfriars Street, Manchester, M3 5BQ

Project: School Street, Radcliffe

Clients Project No: 211196

Project No: 24/06457

Date Received: 01/07/2024 (am)

Cool Box Temperatures (°C): 15.3

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	24/06457/7	24/06457/8
Client Sample No		
Client Sample ID/Depth	BB2	BB3
Date Sampled	25/06/24	25/06/24
A-T-019s	04/07/2024	04/07/2024
A-T-024s	05/07/2024	05/07/2024
A-T-026s	04/07/2024	04/07/2024
A-T-027s	05/07/2024	05/07/2024
A-T-028s	05/07/2024	05/07/2024
A-T-031s	04/07/2024	04/07/2024
A-T-032s	05/07/2024	05/07/2024
A-T-040s	04/07/2024	04/07/2024
A-T-042sTCN	08/07/2024	08/07/2024
A-T-044	08/07/2024	08/07/2024
A-T-045	02/07/2024	02/07/2024
A-T-050s	08/07/2024	08/07/2024

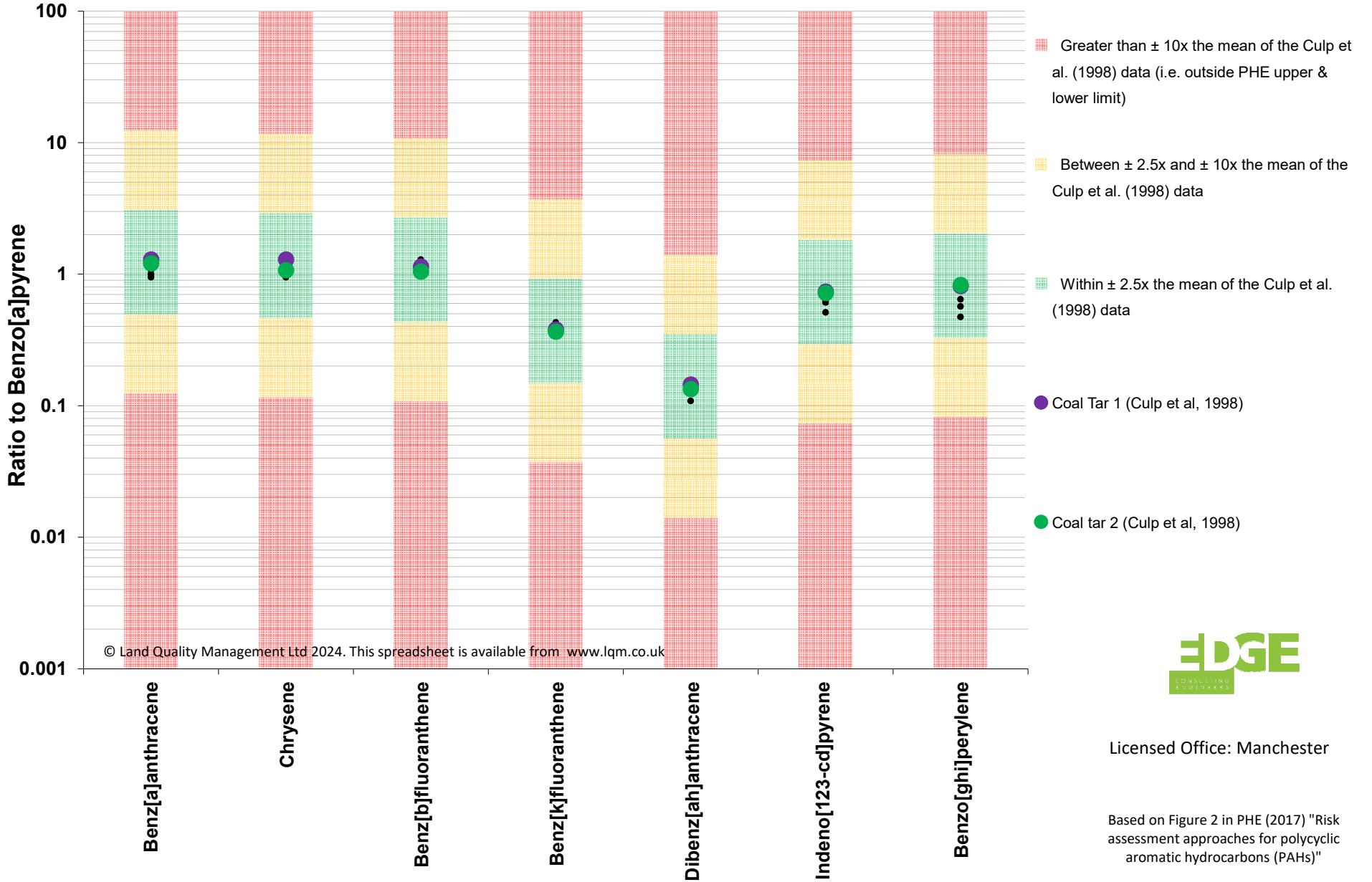
The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

ANNEX IV

PAH Profiling

J:\211196 - School Street Radcliffe\Technical\Geo-environmental\Laboratory\June 2024\PAH profiling v1



© Land Quality Management Ltd 2024. This spreadsheet is available from www.lqm.co.uk

Licensed Office: Manchester

Based on Figure 2 in PHE (2017) "Risk assessment approaches for polycyclic aromatic hydrocarbons (PAHs)"

APPENDIX G

Planning Permission

NOTICE OF PLANNING PERMISSION

Town and Country Planning Act 1990
Town and Country Planning (Development Management Procedure) (England) Order 2015

To:
MCK Associates Limited
Burnaby Villa
48 Watling Street Road
Fulwood
Preston
PR2 8BP

On Behalf Of:
Mr Ed Milner
Hive Homes (Greater Manchester) LLP
Greater Manchester Housing Providers Joint Venture
2A Derwent Avenue
Chorlton
Manchester
M21 7QP

PART 1 - Particulars of Application

Application Number: 69233

Date of Registration: 18/01/2023

Proposal:
Residential development to erect 90 dwellings with associated parking and landscaping

Location:
Site of the former Riverside High School, School Street, Radcliffe, M26 3BW

PART 2 - Particulars of Decision

Bury Metropolitan Borough Council hereby give notice in pursuance of the provisions of the Town and Country Planning Act 1990 that permission has been **GRANTED** for the carrying out of the development referred to in Part 1 hereof in accordance with the application and plans submitted subject to the following conditions:-

1 The development must be begun not later than three years beginning with the date of this permission.
Reason. Required to be imposed by Section 91 Town & Country Planning Act 1990.

2 Subject to the requirements of the conditions below, the development hereby permitted shall be carried out in accordance with the following approved drawings and documents:
Drawings:
Location plan (dwg no. SL01)
External Works - Sheet 1 (Dwg No. 21196-EDGE-XX-XX-DR-C-1101 P02)
External Works - Sheet 2 (Dwg No. 211196-EDGE-XX-XX-DR-1102 P02)
Plot Drainage - Sheet 2 (Dwg No. 211196-EDGE-XX-XX-DR-C-2012 P02)
External Works - Sheet 1 (Dwg No. 21196-EDGE-XX-XX-DR-C-1101 P02)
1.8m Brick Wall with Piers with Timber Infill Panels (Dwg No. BW01)
1800mm High Feathered Access Door (Dwg No. TG01)
1.8m Feather Edges Timber Fence (Dwg No. FB01)
Newbold End - Floor Plans (Dwg No. NB-END-001 A)
Newbold End - Elevations (Dwg No. NB-END-002 A)

Bowker mid - elevations and floor plans (Dwg No. BO-MID-001 18-122 REV.C)
Brooklands house type - elevations and floor plans (Dwg No. BR-001 18-122 REV.B)
Construction details (Dwg no. 211196-EDGE-XX-XX-DR-C-3201 -P01)
Bowker Alternative House Type - floor plans and elevations (Dwg no. BO-ALT-001)
Timber fence detail (Dwg no. FB01)
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Proposed Layout (Colour) (Dwg No. 21-039 PL01 U)
Proposed Layout (Dwg No. 21-039 PL01 U)
Catchment Analysis ((Dwg No. 21196-EDGE-XX-XX-DR-C-2004 Rev. P03)
Manhole schedule (dwg no. 211196-EDGE-XX-XX-DR-C-2201 P03)
Longitudinal Sections - Sheet 2 (Dwg no. 211196-EDGE-XX-XX-DR-C-2102 P03)
Road Setting Out - Sheet 1 (Dwg no. 211196-EDGE-XX-XX-DR-C-3002 P02)
Road Setting Out - Sheet 2 (Dwg no. 211196-EDGE-XX-XX-DR-C-3003 P02)
Kerb and Surfacing Layout (Dwg no. 211196-EDGE-XX-XX-DR-C-3006 P02)
Longitudinal Sections - Sheet 1 (Dwg no. 211196-EDGE-XX-XX-DR-C-2101 P03)
Drainage Layout (Dwg no. 211196-EDGE-XX-XX-DR-C-2002 Rev P03)
Bowker End (Dwg No. BO-END-001 G)
Indicative Sections (Dwg No. 21-039 CS01 C)
Hard Landscaping Plan (Dwg No. 21-039 HL01 B)
Land Use Plan (Dwg No. 21-039 LU01 B)
Boundary Details Plan (Dwg No. 21-039 BD01 G)
Indicative Streetscenes (Dwg No. 21-039 SS01 B)
Proposed Soft Landscaping Plan - Sheet 1 of 2 (Dwg No. 21-039 L-S-001 B)
Proposed Soft Landscaping Plan - Sheet 2 of 2 (Dwg No. 21-039 L-S-002 B)
Materials Plan (Dwg No. 21-039 MP01 B)
Refuse Management Plan (Dwg No. 21-039 RM01 B)

Documents:
Addendum Gas Risk Assessment and Updated Remediation Strategy (Ref. LKC 20 1836)
Ambient Noise and Building Envelope Assessment (Ref. J004296-6055-TD-01)
Crime Impact Statement (2022/0362/CIS/01)

Reason. For the avoidance of doubt and to ensure a satisfactory standard of design pursuant to the policies of the Bury Unitary Development Plan listed.

3 No development shall commence unless and until:-

- A contaminated land Preliminary Risk Assessment report to assess the actual/potential contamination and/or ground gas/landfill gas risks at the site shall be submitted to, and approved in writing by, the Local Planning Authority;
- Where actual/potential contamination and/or ground gas/landfill gas risks have

been identified, detailed site investigation and suitable risk assessment shall be submitted to, and approved in writing by the Local Planning Authority;

- Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority.

Reason. The scheme does not provide full details of the actual contamination and subsequent remediation, which is required to secure the satisfactory development of the site in terms of human health, controlled waters, ground gas and the wider environment and pursuant to National Planning Policy Framework Section 15 - Conserving and enhancing the natural environment.

4 Following the provisions of Condition 3 of this planning permission, where remediation is required, the approved Remediation Strategy must be carried out to the satisfaction of the Local Planning Authority within agreed timescales; and
A Site Verification Report detailing the actions taken and conclusions at each stage of the remediation works, including substantiating evidence, shall be submitted to and approved in writing by the Local Planning Authority prior to the development being brought into use.
Reason. To secure the satisfactory development of the site in terms of human health, controlled waters and the wider environment and pursuant to National Planning Policy Framework Section 15 - Conserving and enhancing the natural environment.

5 No development comprising the erection of any external walls shall take place until details of the materials to be used in the construction of the external surfaces of the development, including the roof, and all boundary treatments, have been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details. The materials to be used throughout the development shall be consistent in terms of colour, size and texture with the approved details.
Reason. In the interests of visual amenity and to ensure a satisfactory development pursuant to Policy EN1/2 - Townscape and Built Design of Bury Unitary Development Plan.

6 Each dwelling hereby approved shall be provided with 1 electric vehicle (EV) charge point (minimum 7kW*) prior to its occupation.
*Mode 3, 7kW (32A) single phase, or 22kW (32A) three phase, and for 50kW Mode 4 rapid charging may be required. British Standard BS EN 61851-1:2019 to be used.

Reason. To encourage the uptake of ultra-low emission vehicles and ensure the development is sustainable. To safeguard residential amenity, public health and quality of life, pursuant to Section 9 of the National Planning Policy Framework.

7 Notwithstanding the details indicated on the approved plans and in the supporting information, no development shall commence unless and until full details of the following have been submitted to a scope and specification to be agreed on a topographical based survey of the site and adjacent adopted highways to the Local Planning Authority:

1. Formation of the accesses onto School Street, incorporating the provision of adequate arrangements at the interface with the adopted highway and 1 in 20 plateau (maximum) at the junction, relocation of the affected speed cushions in a position to be agreed and any associated accommodation works, level access to the private footpaths serving Plots 80 - 85 and the public open space between Plots 79 & 80, provision of visibility splays appropriate for a design speed of 20mph, demarcation of the limits of the adopted highway, tactile paved crossing

points, give-way markings and any associated alterations to existing road markings (subject to the requirements of the scheme of 20mph traffic calming measures and Traffic Regulation Order review) and all associated highway and highway drainage remedial works;

2. Formation of the access onto Abden Street/un-named back street adjacent to No.'s 65/67 Ulundi Street, incorporating the provision of adequate arrangements adequate arrangements at the interface with the adopted highway and tying-in with the existing kerbline of and parking lay-by/road markings on Abden Street, 1 in 20 (maximum) plateau at the junction, reconstruction of the section of Abden Street between Ulundi Street and the easterly site boundary and scheme of road markings/coloured surfacing, alterations to the boundaries at Plots 43/43 to form an acceptable junction with the back street and provide visibility splays appropriate for a design speed of 20mph, demarcation of the limits of the adopted highway, tactile paved crossing points, give-way markings and alterations to existing road markings (subject to the requirements of the scheme of 20mph traffic calming measures) and all associated highway and highway drainage remedial works;
3. Revised footpath arrangements in the vicinity of Plot 69 to ensure that the new pedestrian route connects to and at the correct level on the existing southerly footway on Chard Street and all associated accommodation works on the adopted highway;
4. All works around the perimeter of the site to either retain or replace the existing school boundary walls, pillars and railings, incorporating, where required, new foundations that do not encroach under the adopted highway, demarcation of the limits of the adopted highway with flush/50mm upstand edgings (as appropriate) and all associated accommodation works on the adopted highway;
5. In the event that the site access/estate roads are not to be considered for adoption by the Council, measures to prevent the discharge of surface water onto the adopted highway;
6. In the event that any retaining structures are required that abut/are sited in close proximity to the adopted highway, an 'Approval In Principle' for the proposed structures, incorporating full structural, construction and drainage details, calculations, pedestrian protection measures and a detailed construction method statement;
7. Provision of a street lighting assessment to a scope and specification to be agreed for School Street between the site access and Hutchinson Way, Abden Street between the site access and Blackburn Street, the proposed residential estate roads, and, where necessary, a scheme of improvements;
8. Review of need for the introduction of waiting restrictions to scope to be agreed at the junction of the site accesses with School Street and Abden Street, including, if required, all necessary road markings and signage;
9. A scheme of 20mph traffic calming measures on the proposed estate roads to a scope and specification to be agreed, incorporating the formation of speed tables at all appropriate junctions, road markings, signage and works within the existing as required.

The details subsequently approved shall be implemented in full to a programme agreed with the Local Planning Authority.
Reason. To secure the satisfactory development of the site in terms of highway safety, ensure good highway design, in the interests of fire safety, ensure the intervisibility of the users of the site and the adjacent highways and maintain the integrity of the adopted highway, all in the interests of highway safety, pursuant to policies H2/2, EN1/2 and HT6/2 of the Bury Unitary Development Plan.

8 In the event that it is intended for the proposed residential estate roads to be considered for adoption by the Council, notwithstanding the details indicated on the

approved plans and supporting information, no development shall commence unless and until full details of the following have been submitted on a topographical based survey of the site and adjacent adopted highways to the Local Planning Authority:

1. Formation of the proposed estate roads (including any necessary land filling operations and method of compaction), incorporating minimum 5.5m carriageway and 2.0m footway widths;
2. Provision of long sections and cross sections at positions to be agreed through the proposed estate roads and turning heads to ensure that adoptable gradients will not exceed 1 in 14 for the purposes of adoption and incorporating a maximum 1 in 20 plateau at each junction within the development and at the interface with the adopted highway;
3. Demarcation of the limits of adoption at all relevant locations;
4. Provision of visibility splays and forward visibility envelopes appropriate for a design speed of 20mph at all internal junctions and bends in accordance with the standards in Manual for Streets with no obstructions above the height of 0.6m within them;
5. Revised access/parking arrangements for Plots 5, 31 & 36 to ensure that the new dwellings are served from the adjacent private shared accesses and to mitigate the need for long reverse manoeuvres into the adjacent junctions along the proposed adopted footways that would otherwise result from the layout as submitted;
6. Revised access/parking arrangements for Plot 40 to avoid the proposed driveway straddling the anticipated limits of adoption;
7. Provision of adequate levels of visibility at the back edge of the footway at Plots 27, 38 & 39;
8. Swept path analysis of the proposed estate roads to ensure that an 11.85m long refuse collection vehicle can pass a private car at all points and manoeuvre at all turning heads;
9. Facilities for the storage of bins on collection day at the interfaces of all shared accesses with the proposed adopted highway;
10. Proposed planting/surfacing details and management/maintenance arrangements for all landscaped/car parking areas abutting the proposed adopted highway;
11. Proposed porous/permeable shared driveway/hardstanding materials and/or measures to prevent the discharge of surface water onto the adopted highway.

The details subsequently approved shall be implemented to an agreed programme and to the written satisfaction of the Local Planning Authority.
Reason. To secure the satisfactory development of the site in terms of highway safety, ensure good highway design, ensure the intervisibility of the users of the site and the adjacent highways and maintain the integrity of the adopted highway, all in the interests of highway safety. pursuant to policies H2/2, EN1/2 and HT6/2 of the Bury Unitary Development Plan.

9 No development shall commence unless and until a ‘Construction Traffic Management Plan’ (CTMP), has been submitted to and agreed in writing with the Local Planning Authority and shall confirm/provide the following:

1. Photographic dilapidation survey of the footways and carriageways leading to and abutting the site in the event that subsequent remedial works are required following construction of the development and as a result of statutory undertakers connections to the site;
2. Access route for all construction vehicles to the site from the Key Route Network, including the need to prohibit/limit the use of the residential street in the Abden Street/Lord Street area;
3. Access point(s) for construction traffic taking into consideration existing residential properties and their accesses onto School Street and any temporary

works/phasing of the development that may be required to facilitate safe access for construction vehicles;
4. If proposed, details of site hoarding/gate positions, taking into consideration the need to maintain adequate levels of visibility onto the adopted highway;
5. The provision, where necessary, of temporary pedestrian facilities/protection measures on the highway;
6. A scheme of appropriate warning/construction traffic speed signage in the vicinity of the site and its access(es);
7. Confirmation of hours of operation and number of vehicle movements;
8. Arrangements for the turning and manoeuvring of vehicles within the curtilage of the site and/or measures to control/manage delivery vehicle manoeuvres;
9. Parking on site or on land within the applicant's control of operatives' and construction vehicles, together with storage on site of construction materials;
10. Measures to ensure that all mud and other loose materials are not spread onto the adjacent adopted highways as a result of the groundworks operations or carried on the wheels and chassis of any vehicles leaving the site and measures to minimise dust nuisance caused by the operations.

The approved plan shall be adhered to throughout the construction period and the measures shall be retained and facilities used for the intended purpose for the duration of the construction period.
Reason. To mitigate the impact of the construction traffic generated by the proposed development on the adjacent highways, ensure adequate off street car parking provision and materials storage arrangements for the duration of the construction period and that the adopted highways are kept free of deposited material from the ground works operations., in the interests of highway safety, pursuant to policies H2/2, EN1/2 and HT6/2 of the Bury Unitary Development Plan.

10 In the event that it is not intended for the proposed residential estate roads to be considered for adoption by the Council, no development shall commence unless and until details of the proposed arrangements for future management and maintenance of the proposed estate road within the development have been submitted to and approved by the local planning authority. The estate roads shall thereafter be maintained in accordance with the approved management and maintenance details until such time as a private management and maintenance company has been established.
Reason. This is required prior to the commencement of development to ensure that the unadopted estate roads serving the development is maintained to an acceptable standard in the interest of residential/highway safety, to ensure a satisfactory appearance to the highways infrastructure serving the development, and to safeguard the visual amenities of the locality and users of the highway pursuant to policies H2/2 and EN1/2 of the Bury Unitary Development Plan.

11 The various turning facilities indicated on the approved plans shall be provided before the areas of the development to which they relate are first occupied and the areas used for the manoeuvring of vehicles shall subsequently be maintained free of obstruction at all times.
Reason. To minimise the standing and turning movements of vehicles on the highway in the interests of road safety, pursuant to policies H2/2, EN1/2 and HT6/2 of the Bury Unitary Development Plan.

12 Minimum hardstanding lengths of 5.0m at all dwellings (10.0m when in tandem) shall be provided to the written satisfaction of the Local Planning Authority and thereafter maintained.
Reason. To allow adequate space to maintain vehicles clear of the highway in the interests of pedestrian safety, pursuant to policies H2/2, EN1/2 and HT6/2 of the

Bury Unitary Development Plan.

13 The car parking indicated on the approved plans shall be surfaced and made available for use to the satisfaction of the Local Planning Authority prior to the each dwelling/part of the site to which it relates being occupied and thereafter maintained at all times.
Reason. To ensure adequate off street car parking provision in the interests of road safety pursuant to policy HT2/4 of the Bury Unitary Development Plan.

14 Bin storage shall be provided within the curtilage of each dwelling in accordance with the approved Refuse Management Plan (Dwg No. 21-039 RM01 B).
Reason. To ensure that adequate bin storage arrangements are provided within the curtilage of each dwelling, pursuant to policies H2/2 and EN1/2 of the Bury Unitary Development Plan.

15 Any tree assessed as low risk by either TEP in the preliminary ecological assessment dated February 2021 drawing number g8603.001, or Arbtech in the preliminary ecological appendix 4 Habitat survey plan, shalll be removed using soft felling techniques under the guidance of an ecological consultant, unless otherwise agreed in writing by the Local Planning Authority.
Reason. In order to ensure that no harm is caused to a Protected Species pursuant to policies EN6 – Conservation of the Natural Environment and EN6/3 – Features of Ecological Value of the Bury Unitary Development Plan and Section 11 of the National Planning Policy Framework.

16 The drainage for the development hereby approved shall be carried out in accordance with the principles set out in the approved Drainage Layout 211196-EDGE-XX-XX-DR-C-2002 Rev P03, dated 11/05/2023, which was prepared by EDGE. For the avoidance of doubt surface water must drain at the restricted rate of 22.3l/s. Prior to occupation of the first dwellinghouse, the drainage scheme shall be completed in accordance with the approved details and retained thereafter for the lifetime of the development.
Reason. To ensure a satisfactory form of development and to prevent an undue increase in surface water run-off and to reduce the risk of flooding, pursuant to Policy EN5/1 of the Bury Unitary Development Plan and Section 14 of the National Planning Policy Framework.

17 All trees to be retained on site, as indicated on approved drawing Proposed layout 21-039 PL01 Q, shall be protected in accordance with BS 5837:2012 "Trees in relation to design, demolition and construction". The development shall not commence unless and until the measures required by the British Standard are implemented and all measures required shall remain in situ until the development has been completed.
Reason. To avoid the loss of trees which are of amenity value to the area pursuant to Policy EN1/2 - Townscape and Built Design and EN8/2 – Woodland and Tree Planting of the Bury Unitary Development Plan.

18 The hard and soft landscaping shall be carried out in accordance with the approved Proposed Soft Landscaping Plan - Sheet 1 of 2 (Dwg No. 21-039 L-S-001 B) and Proposed Soft Landscaping Plan - Sheet 2 of 2 (Dwg No. 21-039 L-S-002 B). All planting, seeding and/or turfing shall be carried out in the first planting and seeding seasons following the occupation of the building(s) relating to that phase or the completion of the development, whichever is the sooner, and any trees, shrubs, hedges or plants which within a period of five years from the completion of development die, are removed, or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species, unless

the Local Planning Authority gives written consent to any variation.
Reason. To secure the satisfactory development of the site and in the interests of visual amenity and to ensure the protection of wildlife and supporting habitat and to secure opportunities for enhancing the site's nature conservation value, pursuant to policies EN6/4, EN8/2 and EN10/2 of the Bury Unitary Development Plan and Section 15 of the National Planning Policy Framework.

19 The acoustic fence to the northern boundary of the site, as detailed in the submitted Ambient Noise & Building Envelope Assessment (Report Ref. J004296-6055-TD-01), shall be implemented in full prior to the occupation of the first dwellinghouse and where building fabric mitigation measures are indicated, these shall be completed in full prior to the first occupation of the associated dwellinghouse.
Reason. In order to ensure that the amenities of the future occupants of the proposed properties are not adversely impacted by noise from the nearby industrial builder's merchant, in accordance with Policy EN7/2 of the Bury Unitary Development Plan and the Section 15 of the National Planning Policy Framework.

Statement in accordance with Article 35(2) Town and Country Planning (Development Management Procedure) (England) (Amendment) Order 2015

The Local Planning Authority worked positively and proactively with the applicant to identify various solutions during the application process to ensure that the proposal comprised sustainable development and would improve the economic, social and environmental conditions of the area and would accord with the development plan. These were incorporated into the scheme and/or have been secured by planning condition. The Local Planning Authority has therefore implemented the requirement in Paragraph 38 of the National Planning Policy Framework.

The following policies of the Bury Unitary Development Plan, National and Regional Government were considered relevant:

H1/2 H1/2 - Further Housing Development
H2/1 H2/1 - The Form of New Residential Development
H2/2 H2/2 - The Layout of New Residential Development
H4/1 H4/1 - Affordable Housing
EN1/1 EN1/1 - Visual Amenity
EN1/2 EN1/2 - Townscape and Built Design
EN1/3 EN1/3 - Landscaping Provision
EN1/5 EN1/5 - Crime Prevention
EN5/1 EN5/1 - New Development and Flood Risk
EN6 EN6 - Conservation of the Natural Environment
EN6/3 EN6/3 - Features of Ecological Value
EN7 EN7 - Pollution Control
EN7/1 EN7/1 - Atmospheric Pollution
EN7/2 EN7/2 - Noise Pollution
EN7/5 EN7/5 - Waste Water Management
EN8/2 EN8/2 - Woodland and Tree Planting
RT2/2 RT2/2 - Recreation Provision in New Housing Development
HT2/4 HT2/4 - Car Parking and New Development
HT4 HT4 - New Development
HT5/1 HT5/1 - Access For Those with Special Needs
HT6/2 HT6/2 - Pedestrian/Vehicular Conflict
CF1/1 CF1/1 - Location of New Community Facilities
SPD1 Supplementary Planning Document 1 - Open Space, Sport and Recreation

	Provision in New Housing Development
SPD5	Development Control Policy Guidance Note 5: Affordable Housing Provision in New Residential Developments
SPD6	Supplementary Planning Document 6 - Alterations and Extensions to Residential Properties.
SPD11	Development Control Policy Guidance Note 11 - Parking Standards in Bury
H5	H5 - Housing Improvement
H5/1	H5/1 - Area Improvement
NPPF	National Planning Policy Framework

This decision relates only to the Town and Country Planning Acts and does not include any consent or approval under any other enactment or under the Building Regulations. Any other consent or approval which is necessary must be obtained from the appropriate authority.

Applicant Plan Numbers:
Location plan (Dwg no. SL01)
External Works - Sheet 1 (Dwg No. 21196-EDGE-XX-XX-DR-C-1101 P02)
External Works - Sheet 2 (Dwg No. 211196-EDGE-XX-XX-DR-1102 P02)
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1800mm High Feathered Access Door (Dwg No. TG01)
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REV

Proposed Layout (Colour) (Dwg No. 21-039 PL01 U)
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Manhole schedule (Dwg no. 211196-EDGE-XX-XX-DR-C-2201 P03)
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Materials Plan (Dwg No. 21-039 MP01 B)
Refuse Management Plan (Dwg No. 21-039 RM01 B)

NOTES TO APPLICANT

1. **Environmental Protection Officer advice**

Works carried out in connection with the planning permission shall comply with the above regulations which require the following:

1. All works and ancillary operations which are audible at the boundary of the nearest house or noise receptor, or at such other place as may be agreed with the Council, shall be carried out only between the hours of 0800 and 1800 on Mondays to Fridays and between the hours of 0900 and 1400 on Saturdays and at no time on Sundays and Bank Holidays.

2. The best practicable means, as defined in section 72 of the Control of Pollution Act 1974, to reduce noise to a minimum shall be employed at all times.

3. All plant and machinery in use shall be properly silenced and maintained in accordance with the manufacturer's instructions.

4. Any emergency deviation from the above (1 - 3) shall be notified to Bury Council without delay.

Any contravention of these requirements will trigger the serving of a Notice under Section 60 of The Control of Noise Regulations 1975.

2. **Coal Authority advice**

1 - Ground investigations and groundworks
Under the Coal Industry Act 1994 any intrusive activities which disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits) require the prior written permission of the Coal Authority since these activities can have serious public health and safety implications. Such activities could include site investigation boreholes, excavations for foundations, piling activities, other ground works and any subsequent treatment of coal mine workings and coal mine entries for ground stability purposes. Failure to obtain permission to enter or disturb our property will result in the potential for court action. Application forms for permission and further guidance can be obtained from the Coal Authority's website at: www.gov.uk/get-apermit-to-deal-with-a-coal-mine-on-your-property.

2 - Shallow coal seams
In areas where shallow coal seams are present caution should be taken when carrying out any on site burning or heat focused activities.

3. **Highway Authority advice**

The applicant's attention is drawn to the need to consult the Department of Operations regarding the specification for and implementation of the required highway and street lighting works and implementation of any required traffic regulation orders. The cost of the works will be the responsibility of the developer.

The applicant's attention is drawn to the need to complete a Section 38 Agreement under the Highways Act 1980, and a Section 104 Agreement under the Water Industry Act 1991, regarding the future adoption of the proposed roads and sewers.

The applicant's attention is drawn to Section 167 of the Highways Act 1980 which requires Highway Authority approval of all structural details and calculations of retaining structures adjacent to the highway, prior to works commencing.

It would be advantageous for the land affected by the highway proposals to be in the control of the Highway Authority. An appropriate course of action would be the free dedication of the land to the Highway Authority by the freeholder.

It is brought to the attention of the applicant that if the proposed estate roads are not eligible for adoption by the Council, the applicant is advised that to discharge the relevant condition regarding future maintenance of the estate roads, the Local Planning Authority will details of a private management and maintenance company confirming funding, management and maintenance regimes.

The Council currently operates a curtilage system of refuse collection. The applicant is advised to liaise with Environment & Development Services, Waste Management & Transport - Bradley Fold, on 0161 253 7010/6635, regarding the operation of this system and the specification for the proposed refuse collection facility at the interface with the adopted highway.

4. **United Utilities advice**
The developer is advised to visit the Council's website to view the comments at: https://planning.bury.gov.uk/online-applications/simpleSearchResults.do?action=firstPage
(United Utilities dated 26/07/2023)

5. **Transport for Greater Manchester advice**
TfGM recommend that a Travel Pack is produced for future residents of the site which could include useful details of the nearest public transport services, journey planning etc. Additionally, incentives could be offered to encourage residents to use alternative modes of travel to the private car such as concessionary bus fares, discounted cycles, journey planning etc.

Signed:



.....
On behalf of the Council

Date of Decision: 24/11/2023

APPENDIX H

Environment Agency Correspondence

Andrew Bain

From: GMMCWasteEnquiries GMMCWasteEnquiries <GMMCWasteEnquiries@environment-agency.gov.uk>
Sent: 13 September 2024 15:45
To: Andrew Bain
Subject: RE: Notification of MMP, Land at School Street, Radcliffe, M26 3BW, Planning Ref: 69233

Good afternoon Andrew

Thank you for informing us you intend to use the DoWCoP for materials re-use on this site, providing that the DoWCoP is followed in full we have no objections to materials use, in accordance with our Regulatory Position Statement.

Materials not used in accordance with the DoWCoP process in full may be deemed waste and will require a relevant permit for deposit. A formal Declaration must be submitted by a Qualified Person **before** any use of materials on site or transfer is permitted.

The Qualified Person should be aware that based on our records the Environment Agency has not reviewed any land quality documents associated with this development in respect of controlled waters.

Should you require the Environment Agency to review the relevant land quality documents associated with this development, for the purposes of addressing planning permission conditions, site specific advice can be provided via our cost recovery service. Further information on our cost recovery service can be obtained from our Sustainable Places Team SPPlanning.RFH@environment-agency.gov.uk

Kind regards

Stephen Bostock
Team Member
Environment Management – EPR Waste 2
Greater Manchester, Merseyside & Cheshire

The Environment Agency: Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Mobile: 07867 927982
E-mail: Stephen.bostock@environment-agency.gov.uk

From: Andrew Bain <abain@edgece.com>
Sent: 05 September 2024 11:31
To: GMMCWasteEnquiries GMMCWasteEnquiries <GMMCWasteEnquiries@environment-agency.gov.uk>
Cc: Jonathan Cummins <jcummins@edgece.com>; Thomas Mackechnie <tmackechnie@edgece.com>
Subject: Notification of MMP, Land at School Street, Radcliffe, M26 3BW, Planning Ref: 69233

You don't often get email from abain@edgece.com. Learn why this is important

Good morning

I am writing to notify you of the intention to use an MMP under the CLA:IRE Code of Practice for a site located off School Street, Radcliffe, M26 3BW, Planning Ref: 69233.

There is a requirement to re-use site won material under a site of origin scenario but there is a shortfall of 2,120m^3 and therefore a direct transfer of soils from a third party site(s) is required.

Planning has been approved and the enabling works phase of remediation has been undertaken and signed off.

Please let me know if you have any queries or, require any further information.

Kind regards

Andrew

Andrew Bain
Team Leader - Geo-environmental

EDGE Consulting Engineers
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APPENDIX I

EDGE Remediation Strategy

+44 (0) 161 834 1938

www.edgece.com

3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester M3 5BQ, United Kingdom

Document name: 211196-EDGE-XX-XX-RP-G-0006_DET_REM_STRAT [P04]

CONSTRUCTION PHASE REMEDIATION STRATEGY REPORT FOR 211196 – SCHOOL STREET, RADCLIFFE

Prepared for:
Hive Homes (Greater Manchester) LLP
2A Derwent Avenue
Chorlton
Manchester
M21 7QP

Revision	Date	Description	Prepared by	Checked by	Approved by
P01	26/07/2024	1st Draft for comment	AJB	TM	AJB
P02	29/07/2024	Revised following comments	AJB	JC	AJB
P03	09/08/2024	Revised following further contractor comments	AJB	JC	AJB
P04	15/10/2024	Revised gas and clean cover system verification details	AJB	JC	AJB

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DRAWINGS

MCK Associates Limited Drawing No 21-039 PL01 Rev AC	Proposed Layout
JLP Surveying Drawing No S21-1045 Rev B	Topographic Survey
BEAM Drawing No SCL001	Post enabling works Topographic Survey (with stockpiles)
Bowland Tree Consultancy Limited Drawing No BTC2342-TCP	Tree Constraints Plan
EDGE Drawing No 211196-EDGE-XX-XX-DR-C-1001 Rev P02	Cut & Fill Isopachyte Layout
EDGE Drawing No 211196-EDGE-XX-XX-DR-C-1002 Rev P02	Cut & Fill Formation Levels

APPENDICES

Appendix A	Drawings
Appendix B	Human Health Assessment Criteria
Appendix C	Gas Protection Measures

1 INTRODUCTION

1.1 Background

Alliance Design UK Ltd t/a EDGE Consulting Engineers ("EDGE") has been appointed by Hive Homes (Greater Manchester) LLP to produce a construction phase remediation strategy for a site located off School Street, Radcliffe, Lancashire, M26 3BW.

The site was previously occupied by a school with the buildings demolished in 2011, following which remediation enabling works were then undertaken.

Planning permission (Ref: 69233) has been granted for Hive Homes to redevelop the site with 90 residential properties with gardens and access roads as shown on MCK Associates Limited Drawing No 21-039 PL01 Rev Z presented in Appendix A.

Planning condition 3, requires the following; No development shall commence unless and until:

- Where remediation/protection measures is/are required, a detailed Remediation Strategy shall be submitted to, and approved in writing by, the Local Planning Authority.

Following the provisions of condition 3, planning condition 4 requires the following:

- Where remediation is required, the approved Remediation Strategy must be carried out to the satisfaction of the Local Planning Authority within agreed timescale, and;
- A site Verification Report detailing the actions taken and conclusions at each stage of the remediation works, including substantiating evidence, shall be submitted to and approved in writing by the Local Planning Authority prior to the development being brough into use.

The site has been the subject of numerous phases of third party investigation as presented in the following documents:

- REC, Phase 1 and 2 Geo-environmental Site Investigation Report, Ref: 46009P1R0 dated April 2015;
- LK Consult, Desk Based Coal Mining Risk Assessment Report, Ref: CL-602-LKC-20 1836-01 dated December 2020;
- The Land Consultancy Limited, Report on Coal Mining Related Site Investigation Works, Ref: T10 SFK (TLC1135) dated January 2021;
- LK Consult, Addendum Gas Risk Assessment and Updated Remediation Strategy Report, Ref: CL-602-LKC-20 1836-02 dated January 2021.

Remediation and enabling works have been undertaken at the site, as detailed in the following report:

- LK Consult, Enabling Works Verification Report, Report Ref; LKR211003_VR dated September 2021.

As part of the site enabling works, a programme of drilling and grouting was undertaken to identify potential coal workings beneath the site, as detailed in the following report:

- AARSLEFF Factual Report 'Drilling and Grouting for New Housing Plots at School Street, Radcliffe', Report Ref: 200112 Rev 02 dated August 2021.

EDGE was appointed by Hive Homes to undertake a technical review of the existing information to assess whether any environmental or geotechnical liabilities may impact the proposed development and to assess whether the reports satisfy planning conditions relating to contaminated land, published in the following report:

- EDGE Geo-environmental Review Report, School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0003_GEO REVIEW [P01], dated April 2024.

In 2022 and 2024, EDGE was commissioned by Hive Homes to undertake further investigations at the site to further assess ground conditions for foundation design and to further sample the existing stockpiles. The findings of the EDGE investigations are detailed in the following reports:

- EDGE Consulting Engineers Site Investigation Report for 211196 – School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0001_SI REPORT [P01] dated 23rd February 2022;
- EDGE Consulting Engineers Site Investigation Report for 211196 – School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0004_SI REPORT [P01] dated 31st May 2024;
- EDGE Consulting Engineers Site Investigation Report for 211196 – School Street, Radcliffe, Report Ref 211196-EDGE-XX-XX-RP-G-0005_SI REPORT [P01] dated 12th July 2024.

In order to discharge planning conditions relating to contaminated land, a construction phase remediation strategy is required detailing the outstanding remediation works necessary to protect environmental and human receptors from potential contamination sources and to render the site suitable for the proposed development.

1.2 Objectives

This document provides a summary of the existing data and outlines the potential remediation works necessary to protect environmental and human receptors from potential contamination sources and to render the site suitable for the proposed development.

The remediation strategy document will be required to be submitted to the regulatory authorities to assist in discharging planning conditions relating to contaminated land.

1.3 Limitations

EDGE CE accept no liability for the accuracy or content within the supplied third-party reports or information and cannot be held liable for any changes to third party information made after the date of this report.

Future changes to regulations, legislation, codes of practice and the use of the site may necessitate a partial or full reassessment of the conclusions and recommendations made in this report.

2 SITE SETTING

2.1 Site Location and Description

The site is located to the north of School Street in Radcliffe at approximate NGR 378045E 4071484N and comprises an area of approximately 2.4 hectares.

The site was remediated in 2021 which included a programme of drilling and grouting undertaken in order to stabilise any mine workings present.

Post enabling works, the site is surfaced with a layer of 6F2 type crush material with some localised ponding. Three stockpiles of processed soils and arisings are located in the middle of the site and two linear fenced off areas are located in the east and west where trees remain. Electricity substations are located on the eastern boundary and to the south-west of the site.

The site is located in a residential area with housing to the east and south and a school to the west. A builders merchants is located immediately to the north.

A topographic survey taken in 2021 by JLP Surveying is presented as Drawing No S21-1045 Rev B in Appendix A. However, since this survey was undertaken, an unspecified volume of 6F2 material has been removed from stockpile and used to form bunds along the site's perimeter.

2.2 Site History

Historically, from the 1800s to the 1920s, the site was occupied by recreational grounds with small buildings of unknown use on the site periphery. From the 1930s until 2011, the site was occupied by a school with the buildings demolished in 2011 and the site was subsequently the subject of remediation enabling works.

2.3 Geology

According to the British Geological Survey, superficial deposits beneath the site are indicated to comprise Diamicton (Glacial Till).

Solid strata are indicated to comprise mudstone, siltstone and sandstone of the Pennine Middle Coal Measures Formation.

BGS 1:10,560 map shows the Top Five Quarters seam outcropping adjacent to the site's north-west boundary, dipping 7˚ beneath the site and the Stonedelph mine seam is indicated to sub-crop beneath the site.

2.4 Hydrology and Hydrogeology

The superficial strata (Diamicton) beneath the site are classified as 'Unproductive Strata' with the solid strata (Pennine Middle Coal Measures Formation) classed as a Secondary A Aquifer.

The nearest surface water feature is the Manchester, Bolton and Bury Canal located 60 m to the north-east.

3 SUMMARY OF PREVIOUS INVESTIGATIONS

3.1 Introduction

As discussed in Section 1.1, the site has been the subject of numerous phases of investigation and remediation, with a summary of the findings presented in the following sections.

3.2 Ground Conditions (Pre-Remediation)

Ground conditions were found to comprise made ground to a depth of up to 1.7 m below ground level (bgl) comprising sand / sandy gravel with fragments of brick, ash and clinker. Buried structures were also encountered associated with former building footings etc.

3.3 Contamination Assessment

No visual or olfactory evidence of contamination was encountered during any of the third party intrusive investigations.

Chemical testing of the soils across the site encountered locally elevated concentrations of heavy metals (arsenic and lead) and Polycyclic Aromatic Hydrocarbons (PAH) when the results were compared with assessment criteria for a residential end use with gardens. No elevated concentrations of Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs) or asbestos were recorded.

The original LK Consult Ltd remediation strategy recommended that the link between end users and contamination should be severed by the isolation of the contaminants beneath building footprints and hardstanding with the provision of 600 mm clean soil cover in rear gardens and 300 mm in front gardens / landscaped areas.

Marginally elevated concentrations of mercury and PAHs were recorded in three samples of groundwater although REC concluded that the risk to controlled waters is 'Low' with LK Consult concluding that there was no risk. As such, no remedial measures were required to be undertaken with respect to controlled waters.

A programme of gas monitoring recorded methane concentrations of up to 3.6 % meaning that gas protection measures in line with CS2 / Amber 1 will be required to be installed in new structures at the site.

Sub-surface concrete should, in general be Design Sulphate Class DS-1 with an ACEC classification of AC-1. Consideration should be given to locally increasing this to DS-2 AC-2 in the area of borehole WS8.

3.4 Coal Mining

The coal mining risk assessment identified potential risks from shallow coal mine workings and associated subsidence. Five rotary boreholes were subsequently drilled across the site to a depth of 40.0 m bgl.

The deep boreholes recorded made ground to a depth of 1.7 m underlain by drift deposits to depths of up to 17.0 m. Solid strata comprising mudstone, siltstone and sandstone were encountered with a number of coal seams (between 0.5 and 1.8 m thick) identified at depths ranging from 20.5 to 32.5 m bgl.

No coal workings or loss of flush were recorded during the drilling works.

3.5 Remediation and Enabling Works

Enabling works were undertaken at the site in 2021, comprising the following:

- Soft strip, asbestos removal and demolition of existing buildings;
- Break out and crushing of hardstanding and relic foundations;
- Excavation of made ground and below ground structures, re-engineering of soils to formation level;
- Excavation, haulage, assessment and management of potentially contaminated materials;
- Disposal of unsuitable materials;
- Contamination watching brief.

The enabling works were completed under full time supervision of the remediation contractor site manager with support / part time supervision by a geo-environmental engineer.

All asbestos containing materials (ACMs) encountered at surface were hand picked and, along with asbestos removed from structures, was removed off site under Duty of Care protocols.

No unexpected contamination was encountered during the enabling works.

All hardstanding and underground structures were removed down to natural strata and crushed and screened for re-use. Deleterious materials (timber, plastics etc) were removed off site under Duty of Care protocols.

The site won made ground soils were placed in 250 mm engineered layers to achieve formation level although EDGE is not aware if any in-situ geotechnical testing (eg plate load tests) was undertaken to verify compaction.

An excess of materials was generated during the enabling works with three stockpiles (BB1 to BB3) of surplus soils remaining at the site, comprising the following:

- BB1 comprises 876 m^3 of site won 6F2;
- BB2 comprises 495 m^3 of site won clay;
- BB3 comprises 838 m^3 of site won subsoil.

The above surplus soils were tested by the remediation contractor and shown to be suitable for re-use. However, only two samples of the site won clay and subsoil were tested. A minimum of three samples should be tested for each material to characterise whether the soils are suitable for re-use. Three samples of the 6F2 were tested for chemical and geotechnical analysis and these soils are suitable for re-use with no further testing required.

The stockpiles are shown on the post enabling works topographic survey presented as BEAM Drawing No SCL001 in Appendix A. However, since this survey was undertaken, an unspecified volume of 6F2 material has been removed from stockpile and used to form bunds along the site's perimeter.

Although the enabling works appear to have been undertaken to a satisfactory level, further post construction remediation is required, comprising the following:

- Provision of 600 mm clean soil cover in gardens and landscaped areas;
- Verification testing of site won and imported soils for use in clean soil cover layer;
- Installation of gas protection measures in new structures in accordance with Characteristic Situation 2 (CS2) / Amber 1;
- Undertake United Utilities Risk assessment for potable water pipes.

The verification report states that there is a low risk of potential contamination in areas which were not accessible (ie tree protection areas).

3.6 Drilling and Grouting

Although no evidence of coal workings were encountered during the site investigation, there remained a risk from unidentified shallow workings across the site. As such, a programme of drilling and grouting was undertaken following the enabling works in 2021 by Aarsleff Ground Engineering.

617 No. treatment holes were drilled across the site on a 6.0 x 6.0 m grid. The treatment holes were terminated at depths ranging from 26.0 to 33.0 m to prove the workings.

Two coal seams were identified during the drilling works although no voids or loss of flush was recorded.

The report shows that no coal workings or voids are present beneath the site and therefore there should be no further risk of collapse from instability due to mine working or voids.

3.7 EDGE Site Investigation (2022)

EDGE was appointed to undertake supplementary trial pitting in two areas in the south of the site where trees are located and which were not included in the enabling works. This was undertaken in order to assess the ground conditions in these areas to further assess any environmental or geotechnical liabilities. In addition, trial pits were excavated in the southern central part of the site to assess the possible reason for ponding which had recently formed.

In the area of the trees, ground conditions comprised made ground to a maximum depth of 2.1 m over generally stiff clay, underlain by sand. The ground conditions were generally consistent with those recorded during the earlier investigations.

No unexpected environmental (ie visual or olfactory evidence of contamination) or geotechnical liabilities were encountered within the areas investigated.

The ponding was considered to comprise perched water within the granular made ground soils underlain by impermeable natural clay soils.

3.8 EDGE Site Investigations (2024)

EDGE has undertaken two phases of investigation in 2024, one in May and one in June, as summarised in the following sections.

3.8.1 EDGE Site Investigation (May 2024)

The May investigation was undertaken to ascertain depths of remediated fill and characterise the underlying natural soils for additional structural design.

Ground conditions were generally found to comprise made ground to depths ranging from 0.30 to 1.50 m, overlying locally very soft to soft and generally stiff silty sandy gravelly clay and loose to generally medium dense, dense and very dense granular soils comprising clayey gravelly sand, clayey sandy gravel and clayey silty sand.

Groundwater was encountered during the investigation at depths ranging from 0.30 m to 4.20 m.

Laboratory testing of the natural cohesive soils confirmed the volume change potential to be 'Low'.

3.8.2 EDGE Site Investigation (June 2024)

EDGE returned to site in June 2024 to undertake a supplementary site investigation to further characterise the underlying natural soils for additional structural design as well as additional chemical testing of site won clay and subsoil stockpiles in accordance with the requirements set out in the LK Consult Remediation Strategy.

In the vicinity of Plots 37 to 49, made ground was encountered up to a depth of 1.2 m, underlain by natural sand (loose in places) to depths ranging from 2.4 to 3.2 m. In ETP308 (adjacent to Plot 49), the sand was underlain by stiff / high strength clay from 3.2 to 3.5 m.

In the south of the site, ground conditions were found to comprise sand interbedded with firm becoming stiff clay.

In order to further assess the suitability of the existing stockpiles for re-use and to fulfil the minimum testing requirements, one representative sample was taken from stockpile BB2 and one from stockpile BB3.

The test results indicate that none of the inorganic determinands tested were above their respective SSVs when compared to values generated for a residential end-use with homegrown produce.

No asbestos was identified in either of the samples tested.

However, exceedances of three PAH compounds were recorded in the sample taken from stockpile BB2.

An elevated concentration of benzo(a)pyrene was recorded with a value of 3.87 mg/kg compared to the S4UL value of 3.00 mg/kg. However, this is below the C4SL value for benzo(a)pyrene which is 5.00 mg/kg and therefore this result was not considered significant.

In addition to the above, elevated concentrations of benzo(b)fluoranthene (4.44 mg/kg) and dibenzo(ah)anthracene (0.42 mg/kg) were recorded against their respective S4ULs of 3.70 mg/kg and 0.30 mg/kg.

Using benzo(a)pyrene as a surrogate marker for carcinogenic PAHs as per Health Protection Agency and CL:AIRE guidelines, EDGE undertook an assessment of the data from the three samples taken from this stockpile (including from the LK Consult report). All the data points that could be used to calculate ratios fell within the upper or lower limits. Based on this distribution of data, EDGE considered that benzo(a)pyrene could be used as a surrogate marker for carcinogenic PAHs (including benzo(a)anthracene, benzo(b)fluoranthene and dibenzo(ah)anthracene, and the C4SL criteria were suitable for this dataset.

Given that the concentrations of benzo(a)pyrene in all three samples from stockpile BB2 were below the C4SL value, the soils from this stockpile can be considered suitable for re-use as subsoil in gardens at the development.

The results from the two phases of testing of soils from stockpile BB3, also indicate that these soils are suitable for re-use as subsoil in gardens at the development.

The results and analysis are presented in the report and accompanying appendices.

4 CONSTRUCTION PHASE REMEDIATION STRATEGY

4.1 General

Based on the information provided in the previous reports and the supplementary EDGE investigations, the site remediation (enabling) works has been undertaken to satisfaction as shown in the verification reports.

The construction phase remediation works are still to be undertaken for the proposed residential development and are presented in this section.

The proposed development requires remediation to residential end use with gardens. Previous investigations at the site have identified localised elevated inorganic and organic contamination concentrations beneath the site which present a potential risk to human health.

End users will be protected from contaminants by isolating the sources beneath building footprints and by the provision of hardstanding and clean soil cover in gardens and landscaped areas.

Final stage earthworks are required in order to create the development platform in accordance with the cut / fill model. This will include utilisation of the existing stockpiles (which have been shown to be suitable for use) and arisings resulting from the excavation of foundations and service trenches.

Gas protection measures in line with Amber 1 are to be installed in the new structures.

The constriction phase remediation works undertaken are summarised below:

- Site clearance of fly tipped materials and vegetation;
- Undertake earthworks cut and fill exercise to formation level;
- Provision of up to 600 mm clean cover layer in garden areas with geotextile marker layer;
- Chemical testing of processed site won / imported soil to assess suitability for re-use.
- Installation of Amber 1 gas protection measures. Supervision and validation of installation of gas mitigation measures by suitably qualified consultant;
- Possible provision of barrier pipe laid in clean soil trenches (Utility Risk Assessment to be undertaken and agreed with providers).

Following completion of the above, full details of the remediation works undertaken will be documented in a verification report which will be submitted to the local authority for approval.

4.2 Site Set Up and Safety

Site works shall be supervised by a suitably qualified Engineer, who will report to a Project Manager.

All site personnel must undergo a site-specific health and safety induction prior to commencement of work on site.

During the works, all personnel on site will comply with guidance provided in the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Redevelopment of Contaminated Land". In summary, the following shall be provided:

- Protective clothing, footwear, gloves and eyewear (personnel should be instructed in why and how they are to be used).
- Welfare facilities.
- Smoking shall be limited to designated areas.

4.3 Contractor Responsibilities

The appointed Contractor for the ground preparation phases of remediation should, where necessary, provide the following:

- Establish the boundaries of the site and the working areas.
- Work in accordance with local authority requirements regarding working hours, noise/dust/odour control, and tree protection.
- Liaise with the local water company and local planning authority regarding any proposed discharge to sewer and surface waters.
- Prepare the necessary COSHH statements and Health & Safety Plan in accordance with CDM regulations.

The contractor shall also ensure:

- Personnel, plant, materials and other equipment related to the contract are confined within the boundaries of the site.
- Good practices relating to personal hygiene are adopted.
- Suitable precautions are implemented at all times to prevent off-site migration of pollutants via airborne dust.
- Suitable precautions are taken to prevent the spread of mud and debris on public highways.
- Refuelling of mobile plant is undertaken in a designated area.
- Above ground oil storage tanks shall comply with the requirements of Pollution Prevention Guideline PPG2.
- A spill kit shall be kept on site, adjacent to the designated refuelling area.

4.4 Tree Protection

A number of trees at the site have been identified at the site for retention as shown on Bowland Tree Consultancy Limited Drawing No BTC2342-TCP presented in Appendix A.

The appointed contractor will ensure that the required protection measures are implemented during the works as per the Bowland Tree Consultancy Limited Arboricultural Constraints Appraisal.

4.5 Environmental Monitoring

The appointed contractor shall set up environmental monitoring points to be maintained during the works (dust, vibration, odour, vapour and noise) and obtain baseline monitoring immediately before the works, if required by the local planning authority.

4.6 Site Clearance

The site should be cleared of all surface debris, fly-tipped waste, vegetation, bushes and any unprotected trees as instructed by the Client.

4.7 Earthworks

In order to provide a suitable development platform a cut / fill exercise is proposed to be undertaken at the site as shown on EDGE Drawing No's 211196-EDGE-XX-XX-DR-C-1001 Rev P02 and 211196-EDGE-XX-XX-DR-C-1002 Rev P02 presented in Appendix A.

The cut/fill model currently shows a surplus of 6,572 m^3 (including drainage arisings) although this may be subject to modification.

The model allows for the re-use of the existing stockpiles within the capping layer and as subsoil.

4.8 Excavation of Made Ground

The made ground across the majority of the site was excavated, processed and re-used across the site (and stockpiled) as part of the enabling phase works. However, foundations and service trenches will require excavation into these soils, which can be re-used elsewhere across the site, or disposed of off-site.

As the made ground has already been turned over, processed and re-laid, there should be not requirement for any further crushing or screening.

In the unlikely event that made ground suspected to be contaminated is encountered during the works, this should be stockpiled separately on an impermeable barrier and chemically tested for suitability of re-use or off-site disposal.

The contractor will record by topographic survey the base of made ground removal / excavations and keep records of materials movements during the works.

4.9 Backfilling of Excavations

Any backfilling works (for services etc) should not introduce contaminants which would adversely affect the proposed development either via exposure to chemicals or hazardous gases, or represent a significant risk of pollution or contamination of the wider environment, particularly controlled waters.

Any materials used as engineered fill should conform to the appropriate classification from the Highways Agency Specification for Highway Works (SHW).

Following completion of the earthworks, road footprints / shared drives should be subjected to plate load testing with a minimum CBR value of 5 % required to be achieved. Tests should be undertaken at formation level with 1 test per 5 engineered plots and 1 test at 25 m centres on road footprints.

4.10 Provision of Clean Soil Cover

Due to the presence of localised contaminants within the made ground, a clean cover system will be required in all proposed garden and landscaped areas.

Following a review of the previous reports, EDGE recommends the provision of up to 600 mm clean cover in gardens areas, reduced to 300 mm in any landscaped areas. Clean cover systems should be placed on a geotextile marker layer.

The site won stockpiled subsoil has been shown to be suitable for re-use in gardens and areas of POS.

Any site won topsoil or further site won subsoil, as well as any topsoil / subsoil imported to the site, should be assessed and tested for suitability of re-use.

The testing and placement of topsoil and/or subsoil shall be independently inspected and validated as described in Sections 5.3 and 5.7.1.

4.11 Off-site Disposal

The disposal of soils or other waste materials, off site should be in accordance with the Duty of Care Regulations.

Wastes should be taken to suitably permitted disposal or treatment facilities by registered waste carriers.

If potentially contaminated soils are to be stored on site, prior to treatment or off-site disposal they should be placed on a suitable geotextile membrane in a pre-designated area to prevent mixing with clean, uncontaminated soils.

Any soils designated for off-site disposal to a waste treatment/disposal facility should also be tested for Waste Acceptance Criteria.

4.12 Previously Unidentified Contamination

In the highly unlikely event that previously unidentified contamination is encountered at any time during the redevelopment it must be reported to the local planning authority.

Appropriate advice should be sought regarding any unanticipated contamination identified. This could include further investigation and assessment or modification of the Remediation Strategy. Appropriate records should be maintained for inclusion in the Completion / Verification Report.

Any soils proven to be contaminated, shall be placed on an impermeable barrier (e.g. clay with polythene membrane, HDPE sheeting or concrete hardstanding). Given that if encountered, the volume of contamination is likely to be low, these soils should be disposed of off-site as treatment will likely be economically unviable.

Any potentially contaminated soils should be sampled for testing in accordance with Section 5.8.3. Should the chemical analysis show these samples to be contaminated, validation testing of the base and side walls of excavations following contamination removal should be undertaken in accordance with Section 5.8.4.

The removal and validation of any contamination should be supervised by the appointed geo-environmental consultant.

4.13 Utilities

A risk assessment for water pipes and associated pipe selection should be undertaken in accordance with the designated utility provider's requirements.

4.14 Materials Management Plan

Earthworks will be required to provide a stable development platform and as such, a Materials Management Plan (MMP) will be required under the CL:AIRE Definition of Waste Code of Practice (DoWCoP). This relates to any soils proposed to be re-used at the site, taken off site for use in another development, or imported to site.

The contractor will provide an MMP for the site which will be submitted to independent assessment by a CL:AIRE Qualified Person for approval, prior to the commencement of the remediation work.

Under the DoWCoP, a verification report is required to be submitted to CL:AIRE following completion of the remediation works. This should be undertaken by the appointed geo-environmental consultant.

4.15 Foundations

The majority of the plots at the site can utilise vibro improved foundations. A specialist vibro ground improvement contractor should be consulted regarding the suitability of this technique and any requirements for the engineering of fill materials.

Where cohesive soils are present in areas affected by trees, a piled foundation solution may be required. Should this be the case, consultations should be made with a specialist piling contractor regarding pile founding depth, type and design.

Traditional strip / trench foundations may also be viable for a small number of plots, depending on ground conditions.

The appointed structural engineer should also undertake a foundation assessment at the site in liaison with the above contractors.

It is recommended that a suspended ground floor construction should be adopted for the properties at this site. Gas protection measures will be required, and plots should therefore adopt pre-cast concrete beam and block floors.

4.16 Supervision of Construction Phase Remediation Works

The chief responsibilities of the supervising consultant shall include the following:

- Validation of clean cover system and installation of gas protection measures.
- Liaising with project manager, remediation contractor and regulators as necessary.

On satisfactory completion of the remediation works the consultant shall prepare a Verification Report to be issued to the local authority and CL:AIRE under the DoWCoP. The Verification Report shall stand as certification that the remediation activities have been carried out in accordance with the Remediation Strategy and DoWCoP.

In the unlikely event that any suspected contamination is encountered during the re-development, works should cease immediately and the local authority contaminated land officer and appointed consultant should be contacted for advice.

5 VERIFICATION PLAN

The local authority will require the submission of a Completion / Verification Report which will stand as proof that the construction phase remediation works have been carried out in general accordance with the agreed strategy.

The implementation of the remediation strategy will be subject to independent supervision and validation in accordance with the requirements of the planning permission.

5.1 Validation

The proposed mitigation and remediation measures will be validated and verified by a suitably qualified independent consultant. This will include:

- Inspection and validation of clean soil cover capping in gardens and landscaped areas;
- Inspection and validation of gas mitigation measures.

In the unlikely event that any suspected contamination is encountered during the re-development, works should cease immediately and the local authority contaminated land officer and appointed consultant should be contacted for advice.

5.2 Excavation of Made Ground, Previously Unidentified Contamination

A watching brief shall be maintained by the contractor during the excavation and removal of any made ground.

In the highly unlikely event that previously unidentified contamination is encountered at any time during the redevelopment it must be reported to the appointed geo-environmental consultant and local planning authority.

Any soils proven to be contaminated, shall be placed on an impermeable barrier (e.g. clay with polythene membrane, HDPE sheeting or concrete hardstanding). Given that if encountered, the volume of contamination is likely to be low, these soils should be disposed of off-site as treatment will likely be economically unviable.

Any potentially contaminated soils should be sampled for testing in accordance with Section 5.8.3. Should the chemical analysis show these samples to be contaminated, validation testing of the base and side walls of excavations following contamination removal should be undertaken in accordance with Section 5.8.4.

The removal and validation of any contamination should be supervised by the appointed geo-environmental consultant.

5.3 Clean Soil Cover

The testing and placement of topsoil and/or subsoil shall be independently inspected and validated. The Engineer/Consultant shall record any visual/olfactory observations, a description of the material sampled, approximate sample locations and shall also maintain a photographic record. These records, along with the laboratory test results shall be kept for inclusion in the Completion / Verification Report.

Where topsoil / subsoil is to be placed in gardens / landscaped areas, the independent verifier will check the following:

(i) Where a clean soil cover layer has been placed that it meets the required minimum thickness;

(ii) Where site won clean soil or imported soils for use in the cover layer have been placed that these materials are uncontaminated and suitable for use as per Section 5.7.1.

Clean cover layers should comprise a minimum thickness of 600 mm in gardens areas (comprising 150 mm topsoil and 450 mm subsoil), reduced to 300 mm in any landscaped areas (comprising 150 mm topsoil and 150 mm subsoil). Clean cover systems should be placed on a geotextile marker layer.

The site won stockpiled subsoil can be re-used in plot gardens and in areas of landscaping as it has been shown to be chemically suitable.

In accordance with local authority requirements, each plot will be verified in accordance with Section 7.6 of the National Contaminated Land Officers Group (NCLOG) Regulators Guide to Cover Systems and their Verification 2024. Each source will also be tested for topsoil (BS 3882:2015) and subsoil (BS 8601:2013) in addition to the contamination testing suite as detailed in Section 5.7.1.

The verification of the testing and placement of the clean soil cover layer will be presented in a standalone verification report or plot specific reports.

5.4 Gas Mitigation Measures

Gas mitigation measures in accordance with Amber 1 are required in new structures at the site. The independent verifier will check that the mitigation measures are installed in line with those agreed with the local planning authority.

According to CIRIA C665, an NHBC Amber 1 classification requires low level gas protection measures, comprising a membrane and ventilated sub-floor void.

BS8485 (2015) Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings uses a points based system for the installation of gas protection measures. For Type A private residential buildings with Amber 1 / CS2 protection a score of 3.5 is required.

The following measures will achieve the required score of 3.5:

For plots with beam and block flooring:

(a) Good performance sub-floor ventilation ie block and beam floor (1.5 points);

(b) A gas resistant membrane with validation in accordance with CIRIA C735 (2 points);

Gas protection measures should be installed as shown on the details presented in Appendix C and in accordance with manufacturer's specifications. An example of an Amber 1 proprietary gas protection membrane is also provided in Appendix C and this, or a membrane which matches this specification should be installed by the contractor.

Upon completion of the required mitigation measures, proof of verification will be presented in a standalone verification report or plot specific reports.

5.5 Off Site Disposal

Records of any waste materials removed from site including topsoil, contaminated soils, fly-tipped materials, vegetation, tanks etc should be kept and documented in accordance with the Duty of Care Regulations.

5.6 Site Diary and Photographic Records

The appointed contractor will maintain a detailed record of the works undertaken in a daily site diary along with a photographic record the works.

5.7 Sampling and Analysis

The independent verifier will keep records of the chemical testing of the following:

- site won soils (ie not from the existing stockpiles) to be re-used as subsoil in the clean cover layer in gardens and landscaped areas;
- any topsoil and subsoil imported to site or site won for use in the clean cover layer in gardens and landscaped areas;
- any aggregates imported to the site to be used as structural fill or in the development, and;
- any suspected contamination and validation samples.

Samples will be analysed in accordance with the requirements set out in this report and the results will be retained for inclusion in the Completion / Verification Report.

The appointed contractor is responsible for undertaking CBR testing on roads / shared drives at 25.0 m centres and at a frequency of 1:5 engineered plots.

All samples taken should be submitted to a UKAS/MCERTS accredited laboratory.

5.7.1 Imported Soils for Gardens and Landscaped Areas

The testing and placement of topsoil and/or subsoil shall be independently inspected and validated. The Engineer/Consultant shall record the source(s) of imported soils, any visual/olfactory observations, a description of the material sampled, approximate sample locations and shall also maintain a photographic record. These records, along with the laboratory test results shall be kept for inclusion in the Completion / Verification Report.

Site won or imported topsoil/subsoil should be tested at the frequencies detailed in the LK Consult approved remediation strategy and summarised below.

Whether the topsoil is from greenfield, brownfield or unknown sources, it should be tested at a frequency of 1 sample per 50 m^3. Similarly, subsoil should be tested at a frequency of 1 sample per 150 m^3, no matter the source. A minimum of three samples per source should be taken.

The samples shall be analysed for a generic test suite as a minimum (to be agreed with the local authority), as follows:

pH	Speciated PAHs
Cyanide	Monohydric phenols
Toxic and phytotoxic metals	Sulphate
(As, B, Cd, Cu, Cr, Pb, Ni, Hg, Se & Zn)	Soil organic matter

Should the samples be from a brownfield or unknown source, they should also be tested for asbestos identification. Should asbestos be identified, soils should not be used in the clean soil cover layer.

EDGE proposes that for clean soil cover to be placed in gardens, S4ULs for a residential end use with gardens are utilised as assessment criteria with C4SLs utilised where S4ULs are absent (e.g., for lead). For landscaped / POS areas, assessment criteria for POS should be utilised.

Assessment criteria for all end use scenarios are presented in Appendix B.

Each source will also be tested for topsoil (BS 3882:2015) and subsoil (BS 8601:2013).

5.7.2 Previously Unidentified Contamination

In the unlikely event that any previously unidentified contamination is encountered, these soils should be excavated, removed and placed on in the pre-designated storage area.

Any suspected contamination should be tested for, and assessed against the assessment criteria presented in Appendix B.

Should the results fail, the material should be disposed of to a suitably licensed waste facility in accordance with Duty of Care regulations.

Any soils identified for disposal to a waste facility should also be tested for Waste Acceptance Criteria (WAC) analysis if required by the operator of said facility.

5.7.3 Validation of Contamination Removal

In the unlikely event that contamination is encountered during the works, following removal, validation samples of excavations where contaminated soils are removed should be taken at a frequency of 1 per 25m^2 from the base and sides of excavations. Small excavations should be verified by a minimum of one sample for each excavation face and base.

Should chemical testing prove that the soils are not contaminated, the soils can be reused as structural / general fill beneath the cover system in gardens or POS (depending on concentrations recorded).

5.8 Final Validation/Verification Report

Upon completion of the implementation of the agreed remediation and mitigation measures, a Completion / Verification Report will be prepared and submitted to the local planning authority.

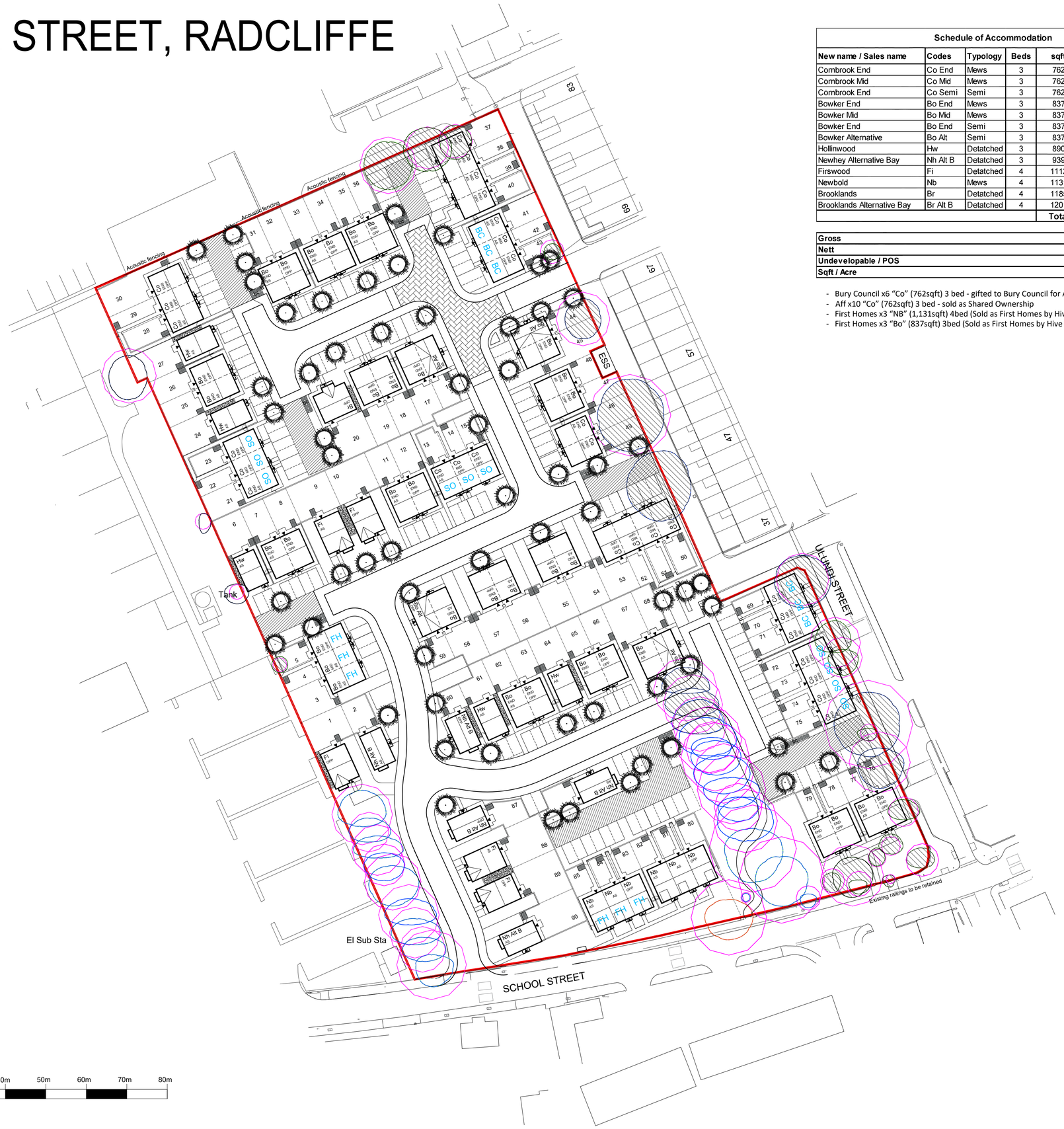
The verification report will include the following:

(i) A general description of works undertaken;
(ii) Records of soil excavations, movements and placement;
(iii) Confirmation of clean cover layer thicknesses in gardens and landscaped areas;
(iv) Laboratory test results confirming the suitability of any imported soils and/or topsoil and subsoil used in garden and landscaped areas;
(v) Laboratory test results from other any soils / waters tested;
(vi) Confirmation that the required gas mitigation measures have been installed correctly;
(vii) Records of any monitoring undertaken during the redevelopment works;
(viii) Details of any unexpected contamination identified during the works, investigations and additional remediation measures;

(ix) A record of any contaminated material removed from site for disposal;
(x) Details and records of any geotechnical testing undertaken;
(xi) Final confirmation that the remediation works have been completed in accordance with the approved Remediation Strategy.

The results can be compiled in a standalone verification report, or a validation letter report can be issued (verifying the final earthworks) with individual plot specific reports for the verification of clean soil cover and gas protection measures.

SCHOOL STREET, RADCLIFFE



0m 10m 20m 30m 40m 50m 60m 70m 80m

1 : 500

Schedule of Accommodation

New name / Sales name	Codes	Typology	Beds	sqft	Total	Total Sqft
Cornbrook End	Co End	Mews	3	762	16	12192
Cornbrook Mid	Co Mid	Mews	3	762	11	8382
Cornbrook End	Co Semi	Semi	3	762	2	1524
Bowker End	Bo End	Mews	3	837	2	1674
Bowker Mid	Bo Mid	Mews	3	837	1	837
Bowker End	Bo End	Semi	3	837	32	26784
Bowker Alternative	Bo Alt	Semi	3	837	4	3348
Hollinwood	Hw	Detatched	3	890	5	4450
Newhey Alternative Bay	Nh Alt B	Detatched	3	939	5	4695
Firswood	Fi	Detatched	4	1112	5	5560
Newbold	Nb	Mews	4	1131	6	6786
Brooklands	Br	Detatched	4	1185	1	1185
Brooklands Alternative Bay	Br Alt B	Detatched	4	1201	0	0
				Total	**90**	**77417**

Gross	**5.74**	**ACRES**
Nett	**5.04**	**ACRES**
Undevelopable / POS	**0.7**	**ACRES**
Sqft / Acre	**15360.52**	**ACRES**

- Bury Council x6 “Co” (762sqft) 3 bed - gifted to Bury Council for Affordable Rent
- Aff x10 “Co” (762sqft) 3 bed - sold as Shared Ownership
- First Homes x3 “NB” (1,131sqft) 4bed (Sold as First Homes by Hive Homes)
- First Homes x3 “Bo” (837sqft) 3bed (Sold as First Homes by Hive Homes)

general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and specifications relating to the job whether or not indicated on the drawing.
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KEY

- Land Ownership
- Existing trees to be removed
- Indicative planting
- Indicative hedging
- Denotes shared drives
- Denotes raised table
- Retained tree - see tree report for catagory
- root protection area
- Denotes clean stone

BC Gifted housing to Bury Council for affordable rent
FH Housing for First Homes.
SO Housing for shared ownership

Rev.	Date	By	Description
AE	23.09.2024	AT	Updated blocks and amended layout.
AD	22.08.2024	AT	Updated layout to suit client.
AA	22.04.2024	AT	Updated layout following client comments.
Z	15.04.2024	WL	Update layout: patios all amended, bins & clean stone areas shown
Y	05.03.2024	AT	Update layout: parking provision and bin storage provision. Northern boundary fence amended. -Layout small comments tidied up
X	03.01.2024	WL	Plot 30 northern red edge amended
W	03.01.2024	WL	Sub-station excluded from red edge. New red boundary.
V	20.10.2023	WL	Shared ownership text changed to affordable rent in key and under schedule.
U	17.08.2023	WL	Knee rail rear of 79 extended between drive & footpath. 0.5m added for this after drive
T	15.08.2023	WL	Footpath between plots 76 & 77 and path for 76-79 increased to 1.2m
S	15.08.2023	WL	Drive amended for plots 5, 31 & 36
R	14.08.2023	WL	Footpath & knee rail added to front of 76-79 to utilise 2nd gateway
Q	09.08.2023	WL	Plot 80, 81 & 82 FH amended to plots 3, 4 & 5
P	14.07.2023	WL	amended location of affordable tenures. Garages removed
N	17.04.2023	CT	amended location of affordable tenures
M	05.04.2023	WL	Trees retained at left of entrance
L	28.03.2023	CT	Amended road in front of plots 86
K	27.03.2023	CT	Amended access and plots to south
J	23.03.2023	CT	Caddied up amends and additional changes to plots 12 - 21
I	27.02.2023	CT	Sketch insert showing changes following planners comments
H	19.01.2023	MHR	2m high bund added with heavy duty fence
G	28.11.2022	WL	BC, FH, AFF marked on. Key updated
F	14.03.2022	AT	Amended turning heads to ease access for refuse vehicle.
E	22.02.2022	AT	Changed gifted plots from 62-65 to plots 55-57 following email.
D	18.02.2022	AT	Amended units 12-17 and 51-57. Also updated key for marked units.
C	27.01.2022	WL	Amended kerbs & road widths at turning head between 83-84
B	18.01.2022	WL	Amended drives in front of 80-87
A	17.01.2022	CT	Amended plot 42, 73. added a raised table. extended turning head towards plot 44

Client:

Hive HOMES

mck associates limited
architecture | building surveying | urban design
burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk

Project:
SCHOOL STREET
RADCLIFFE

Drawing Title:
PROPOSED LAYOUT

Drawn:	Checked:	Scale:	Date:
C.T		1:500	NOV 2021
Job No:		Drawing No:	Rev:
21-039		PL01	AC

A1

PLANNING



Topographical Survey Legend

Bin	Litter bin	**TL**	Tie line
BH	Bore Hole	**TP**	Telegraph pole
Bol	Bollard	**TPS**	Tactile paving slabs
BS	Bus stop	**TS**	Traffic signal light
BT	British telecom ic	**TV**	Television cover
CPS	Concrete paving slabs	**VP**	Vent pipe
DR	Drain	**WM**	Water meter
Elec	Electrical ic	**WO**	Wash Out
EP	Elec. pole	**UTL**	Unable to lift
ER	Earth rod	Fence annotation	
FH	Fire Hydrant	**B/W**	Barbed wire
FP	Flagpole	**C/B**	Closed boarded
FT	Floodlight	**C/I**	Corrugated iron
G	Gully	**C/L**	Chain link
GP	Gate post	**C/P**	Concrete panel
GV	Gas valve	**H/R**	Hand rail
IC	Inspection cover	**I/R**	Iron railings
JB	Junction box	**O/B**	Open boarded
KO	Kerb outlet	**P/C**	Post & chain
LB	Letter box	**P/R**	Post & rail
LP	Lamp post	**P/W**	Post & wire
Mkr	Utility marker	**W/M**	Wire mesh
MP	Mile post	Level prefix descriptions	
MW	Monitoring Well	**AL**	Arch level
NP	Name plate	**BL**	Bed level
P	Post	**CL**	Cover level
PM	Parking meter	**EH**	Eaves level
RE	Rodding eye	**FL**	Floor level
RS	Road sign	**IL**	Invert level
rwp	Rain water pipe	**PL**	Parapet level
SP	Sign post	**RH**	Roof/ridge level
ST	Stop tap	**SL**	Soffit level
SB	Service Box	**Spr**	Arch springing level
SV	Stop valve	**Top**	Top of pipe/culvert
TCB	Telephone call box	**WH**	Wall height
TH	Trial Hole	**WL**	Water level

BENCH MARK INFORMATION

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

NOTES

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD. THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

SURVEY STATIONS			
STN1	378060.989	407072.458	77.256
STN2	378162.896	407104.523	78.008
STN3	378029.831	407075.787	77.480
STN4	378125.244	407180.558	78.330

REVISIONS

REV	DESCRIPTION	SURVEYED	DRAWN	DATE
A	SURVEYED ABDEN STREET & ULUMDI STREET JUNCTION	CH	JC	10.05.2023
B	MANHOLE INFORMATION ADDED	MG	JC	01.07.2024

JLP Surveying

JLP Surveying Consultants Ltd,
Suite 45 Rodney House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492230
Mobile - 07710 428498
EMAIL:- peterhouston@jlpsurveys.com

PROJECT

SCHOOL STREET
RADCLIFFE

DRAWING TITLE

Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1 :500	A1	1	08.11.2021	B

DRAWING NUMBER

S21-1045



STOCKPILE VOLUMES 02-08-21PROJECTION TO features			
String	Volumes		
	Cut/Material	Fill/Void	Balance
BB1	876.27	0.01	876.27
BB2	494.86	0.00	494.86
BB3	837.84	0.00	837.84

Banks Engineering And Management Ltd

Revisions:

Rev.	Date	Description	By
A	04/08	FEATURES UPDATED	AB

Project:
School Lane

Drawing Title:
02-08-21 Topo Survey

Drawing Ref No:
SCL001

Drawn/Surveyed By:
AB

Date:02-08-21

Scale at A1:
1:500

Notes:

Volumes and levels surveyed to OSGB15

FOR INFORMATION ONLY



Important: The original version of this plan was produced in colour, which is essential to the plan's interpretation and usability. As such, a monochrome copy should not be relied upon

KEY

T = Individual Tree
G = Group of Trees

Please refer to associated Tree Survey Schedule and appendices for specific details in respect of items below:

Tree Categorisations:

Those to be Considered for Retention:

Category 'A' Tree/Group
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years

Category 'B' Tree/Group
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years

Category 'C' Tree/Group
Those of Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years, or Young Trees

Those Considered Unsuitable for Retention:

Category 'U' Tree/Group
Those in Such a Condition that they Cannot Realistically be Retained as Living Trees in the Context of the Current Land Use for Longer Than 10 Years

Note 1: The location of tree T27 was not included on the topographical survey plan provided, and was subsequently plotted by the arboriculturist at the time of the survey using GPS and, where possible, measurement from existing site features. As such, the location of this tree cannot therefore be considered to be entirely accurate

Root Protection Areas (RPAs):

RPAs
Area(s) of Ground Around Trees that Should be Protected Throughout Development Works with Protective Fencing to form a Construction Exclusion Zone - see Temporary Protective Fencing Specification

Project:
SCHOOL STREET
RADCLIFFE
GREATER MANCHESTER
M26 3BP

Client:
HIVE HOMES (GREATER MANCHESTER)

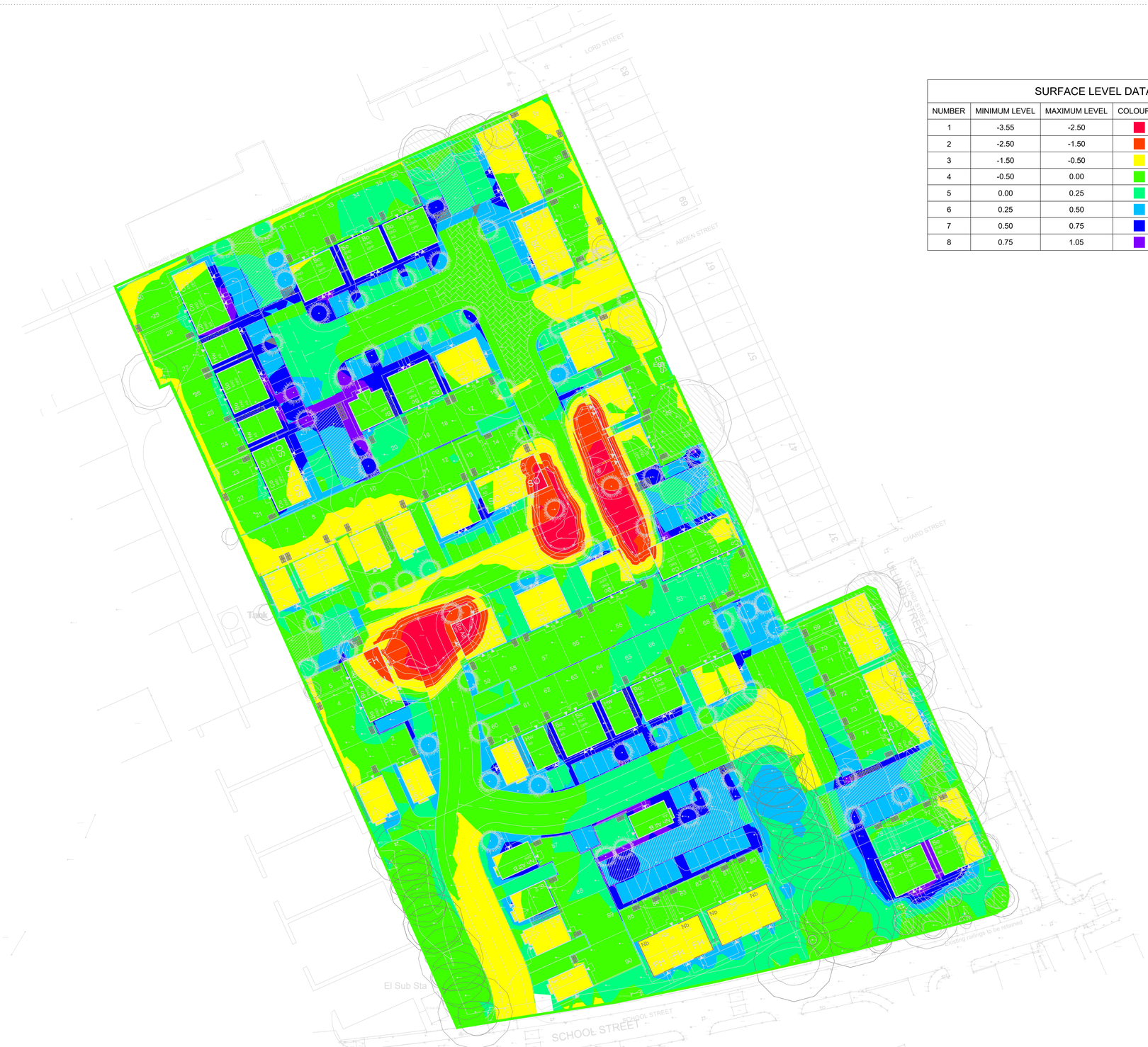
Title:
TREE CONSTRAINTS PLAN
in Relation to Proposed Residential Development

Scale:	1:1000@A3
Date:	November 2021
Drawn by:	PJH
Checked by:	PH

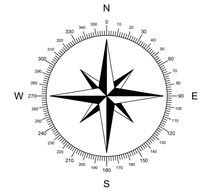
Bowland Tree Consultancy Ltd
e: info@bowlandtreeconsultancy.co.uk
t: 01772 437150

Ref: BTC2342-TCP Rev:

1.05 | 247.319m2 | 19.009m3



SURFACE LEVEL DATA					
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR	AREA	VOLUME
1	-3.55	-2.50		382.729m2	143.022m3
2	-2.50	-1.50		507.295m2	669.472m3
3	-1.50	-0.50		4001.004m2	1738.087m3
4	-0.50	0.00		9716.982m2	4746.572m3
5	0.00	0.25		4393.424m2	1516.814m3
6	0.25	0.50		2660.580m2	705.972m3
7	0.50	0.75		1280.059m2	200.865m3
8	0.75	1.05		247.319m2	19.009m3



NOTES:

THIS DRAWING IS NOT FOR CONSTRUCTION AND THE INFORMATION PROVIDED IS FOR FEASIBILITY PURPOSES.

1. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR HIGHWAYS.
2. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR FOOTWAYS.
3. 300mm CONSTRUCTION BUILD UP IS ASSUMED FOR PRIVATE ROADS AND PRIVATE DRIVES.
4. 600mm FORMATION DEPTH IS ASSUMED FOR GARDENS.
5. FOUNDATION DEPTH OF ALL PLOTS IN LINE WITH EDGE STRUCTURAL SCHEMATIC DRAWINGS:
   "211196-EDGE-XX-XX-DR-S-8001 FOUNDATION SCHEMATIC PLAN"
   - PILED PLOTS: TOP OF MAT LEVEL 675MM BELOW FFL (500MM MAT)
   - VIBRO PILE PLOTS: TOP OF MAT LEVEL 600MM BELOW FFL (500MM MAT)
   - STRIP/TRENCH FILL: 300MM BELOW FFL
6. EXISTING TOPO LEVELS ARE TAKEN FROM THE TOPOGRAPHIC SURVEY.

CUT AND FILL REPORT

GENERAL

NUMBER OF POINTS	172589
MINIMUM X COORDINATE	377950.415M
MINIMUM Y COORDINATE	407077.263M
MAXIMUM X COORDINATE	378155.900M
MAXIMUM Y COORDINATE	407292.100M
MINIMUM ELEVATION	-3.547M
MAXIMUM ELEVATION	1.049M
MEAN ELEVATION	-0.209M
NUMBER OF TRIANGLES	343451
MAXIMUM TRIANGLE AREA	27.225SQ.M
MAXIMUM TRIANGLE LENGTH	15.338M

VOLUME

BASE SURFACE	TOPO
COMPARISON SURFACE	FORMATION SURFACE
CUT FACTOR	1.000
FILL FACTOR	1.000
CUT VOLUME (UNADJUSTED)	7297.15 CU. M.
FILL VOLUME (UNADJUSTED)	2442.66 CU. M.
NET VOLUME (UNADJUSTED)	4854.49 CU. M.<CUT>

ADDITIONAL VOLUME TO BE CONSIDERED WITHIN THE CUT AND FILL EXERCISE.

DRAINAGE ARISINGS

A 200MM ADDITIONAL VOLUME OF CUT HAS BEEN ASSUMED FOR EMBEDMENT AND SURROUND OF ALL MANHOLES.

A 200MM ADDITIONAL VOLUME OF CUT HAS BEEN ASSUMED FOR EMBEDMENT AND SURROUND OF ALL SEWER PIPES.

IT HAS BEEN ASSUMED THAT PIPE TRENCHES ABOVE THE 200MM MENTIONED ABOVE WILL BE BACKFILLED USING AS DUG MATERIAL. THEREFORE THE VOLUME OF CUT FOR PIPES INCLUDING BED AND SURROUND HAS BEEN CALCULATED AS FOLLOWS:

Pipe size	Total Length	Volume
150mmØ	330.026m	99.833m³
225mmØ	36.772m	14.364m³
300mmØ	43.116m	21.127m³
375mmØ	80.239m	48.194m³
600mmØ	82.120m	87.120m³
1200mmØ	139.665m	357.542m³
		623.180m³

Manhole size	Total Depth	Volume
1200Ø	2.560m	7.178m³
1350Ø	29.373m	89.955m³
1800Ø	5.931m	28.706m³
2100Ø	5.012m	31.325m³
2700Ø	21.757m	209.085m³
		366.249m³

PLOT DRAINAGE (5m³ x 91 PLOTS)		455.000m³
ATTENUATION TANK		291.840m³

SUM OF CUT AND FILL:

CUT AND FILL MODEL	=	4854.490m³ CUT
PLUS		
DRAINAGE ARISING'S	=	1717.306m³ CUT
TOTAL	=	6571.796m³ CUT

Rev	Date	Description	By	Chk
P02	30.04.24	Updated in line with latest site layout	H.S.	R.A.
P01	22.03.23	PRELIMINARY - Issued for Information	A.R.	M.A.

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DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
SCHOOL STREET
RADCLIFFE

Client
HIVE HOMES LLP

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
CUT AND FILL ISOPACHYTE LAYOUT

Project No.
211196

PRELIMINARY
NOT FOR CONSTRUCTION

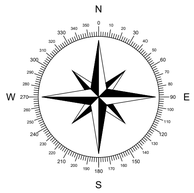
Drawing No.
211196-EDGE-XX-XX-DR-C-1001

Revision
P02

FILENAME:
PLOT DATE:

0 mm 10 20 30 40 50





NOTES:

THIS DRAWING IS NOT FOR CONSTRUCTION AND THE INFORMATION PROVIDED IS FOR FEASIBILITY PURPOSES.

1. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR HIGHWAYS.
2. 665mm CONSTRUCTION BUILD UP IS ASSUMED FOR FOOTWAYS.
3. 300mm CONSTRUCTION BUILD UP IS ASSUMED FOR PRIVATE ROADS AND PRIVATE DRIVES.
4. 600mm FORMATION DEPTH IS ASSUMED FOR GARDENS.
5. FOUNDATION DEPTH OF ALL PLOTS IN LINE WITH EDGE STRUCTURAL SCHEMATIC DRAWINGS:
   "211196-EDGE-XX-XX-DR-S-8001 FOUNDATION SCHEMATIC PLAN"
   - PILED PLOTS: TOP OF MAT LEVEL 675MM BELOW FFL (500MM MAT)
   - VIBRO PILE PLOTS: TOP OF MAT LEVEL 600MM BELOW FFL (500MM MAT)
   - STRIP/TRENCH FILL: 300MM BELOW FFL
6. EXISTING TOPO LEVELS ARE TAKEN FROM THE TOPOGRAPHIC SURVEY.

CUT AND FILL REPORT

GENERAL

NUMBER OF POINTS	172589
MINIMUM X COORDINATE	377950.415M
MINIMUM Y COORDINATE	407077.263M
MAXIMUM X COORDINATE	378155.900M
MAXIMUM Y COORDINATE	407292.100M
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VOLUME

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COMPARISON SURFACE	FORMATION SURFACE
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ADDITIONAL VOLUME TO BE CONSIDERED WITHIN THE CUT AND FILL EXERCISE.

DRAINAGE ARISINGS

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		623.180m³

Manhole size	Total Depth	Volume
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1800Ø	5.931m	28.706m³
2100Ø	5.012m	31.325m³
2700Ø	21.757m	209.085m³
		366.249m³

PLOT DRAINAGE (5m³ x 91 PLOTS) 455.000m³

ATTENUATION TANK 291.840m³

SUM OF CUT AND FILL:

CUT AND FILL MODEL PLUS	=	4854.490m³ CUT
DRAINAGE ARISING'S	=	1717.306m³ CUT
TOTAL	=	6571.796m³ CUT

Rev	Date	Description	By	Chk
P02	30.04.24	Updated in line with latest site layout	H.S.	R.A.
P01	22.03.23	PRELIMINARY - Issued for Information	A.R.	M.A.

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Project Name
SCHOOL STREET
RADCLIFFE

Client
HIVE HOMES LLP

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
CUT AND FILL
FORMATION LEVELS

Project No.
211196

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
211196-EDGE-XX-XX-DR-C-1002

Revision
P02

FILENAME
PLOT DATE:

0 mm 10 20 30 40 50

APPENDIX B

Human Health Assessment Criteria

+44 (0) 161 834 1938

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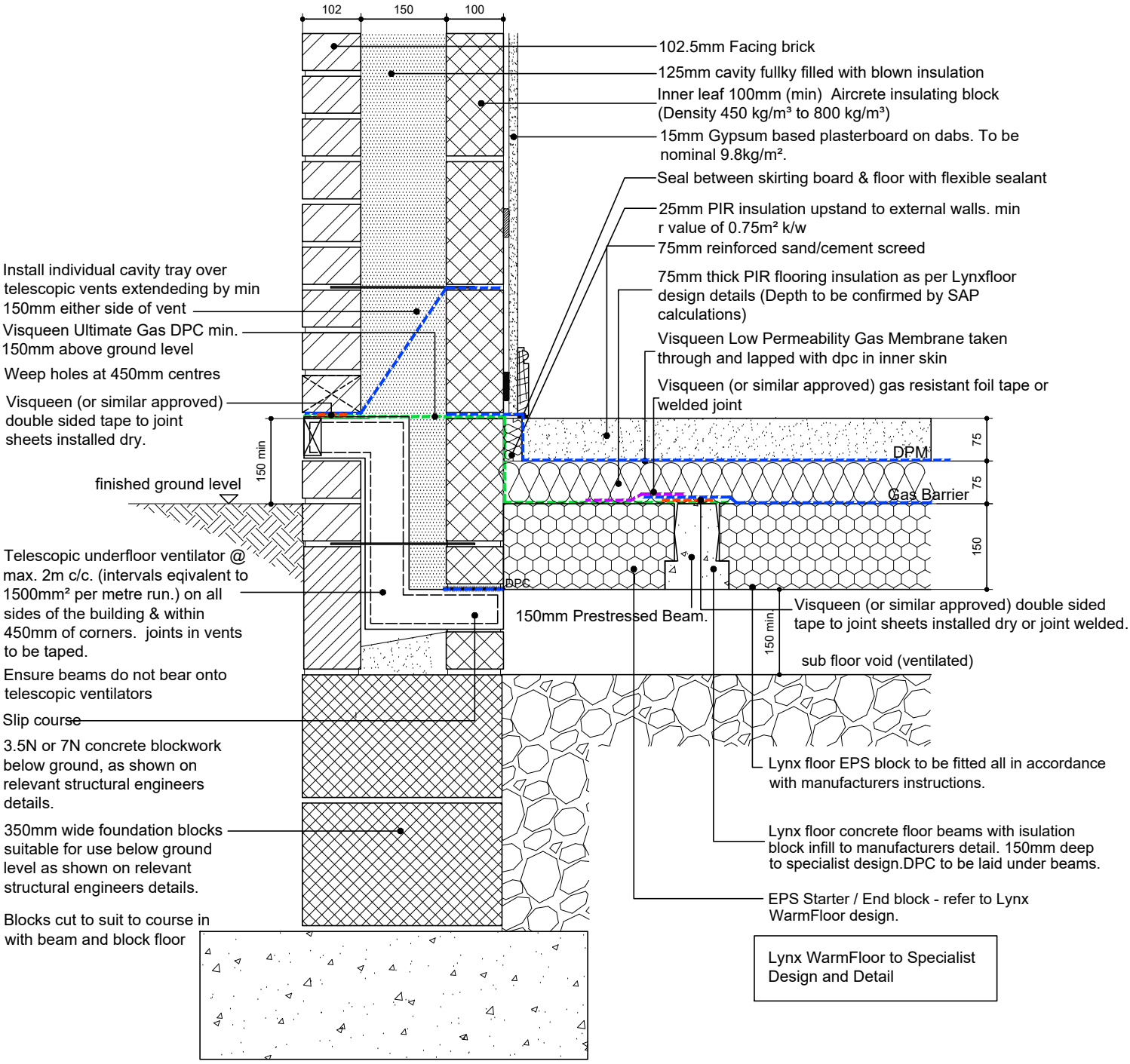
3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester M3 5BQ, United Kingdom

HUMAN HEALTH RISK ASSESSMENT CRITERIA

Determinand	Within 600 mm Capping Layer – Garden[1] (mg/kg)	Within 300 mm Capping Layer – POS[2] (mg/kg)
Metals		
Arsenic	37	79
Boron	290	21,000
Cadmium	11	120
Chromium^{VI}	6	7.7
Copper	2,400	12,000
Lead*	200	630
Mercury (inorganic)	40	120
Nickel	130	230
Selenium	250	1,100
Zinc	3,700	81,000
Polycyclic Aromatic Hydrocarbons (SOM 1%/ 2.5%/ 6%)		
Acenaphthene	210 / 510 / 1100	15,000 / 15,000 / 15,000
Acenaphthylene	170 / 420 / 920	15,000 / 15,000 / 15,000
Anthracene	2,400 / 5,400 / 1,1000	74,000 / 74,000 / 74,000
Benz(a)anthracene	7.2 / 11 / 13	29 / 29 / 29
Benzo(a)pyrene (Bap)	2.2 / 2.7 / 3.0	5.7 / 5.7 / 5.7
Benzo(b)fluoranthene	2.6 / 3.3 / 3.7	7.1 / 7.2 / 7.2
Benzo(g,h,i)perylene	320 / 340 / 350	640 / 640 / 640
Benzo(k)fluoranthene	77 / 93 / 100	190 / 190 / 190
Chrysene	15 / 22 / 27	57 / 57 / 57
Dibenzo(ah)anthracene	0.24 / 0.28 / 0.3	0.57 / 0.57 / 0.58
Fluoranthene	280 / 560 / 890	3,100 / 3,100 / 3,100
Fluorene	170 / 400 / 860	9,900 / 9,900 / 9,900
Indeno(1,2,3-cd)pyrene	27 / 36 / 41	82 / 82 /82
Naphthalene	2.3 / 5.6 / 13	4,900 / 4,900 / 4,900
Phenanthrene	95 / 220 / 440	3,100 / 3,100 / 3,100
Pyrene	620 / 1,200 / 2,000	7,400 / 7,400 / 7,400
Speciated Total Petroleum Hydrocarbons (SOM 1%/ 2.5%/ 6%)		
Aliphatic EC 5-6	42 / 78 / 160	57,000^{sol} (304) / 59,000 / 60,000
Aliphatic EC >6-8	100 / 230 / 530	60,000 / 61,000 / 62,000
Aliphatic EC >8-10	27 / 65 / 150	13,000 / 13,000 / 13,000
Aliphatic EC >10-12	130^{vap} (48) / 330^{vap} (118) / 760^{vap} (283)	13,000 / 13,000 / 13,000
Aliphatic EC >12-16	1,100^{sol} (24) /2,400^{sol} (59) /4,300^{sol} (142)	13,000 / 13,000 / 13,000
Aliphatic EC >16-35	65,000^{sol} (8.48) /92,000^{sol} (21) / 110,000	25,000 / 25,000 / 25,000
Aliphatic EC >35-44	65000^{sol}(8.48) / 92000^{sol} (21) / 110000	25,000 / 25,000 / 25,000
Aromatic EC 5-7 (benzene)	370 / 690 / 1400	56,000 / 56,000 / 56,000

APPENDIX C

Gas Protection Measures



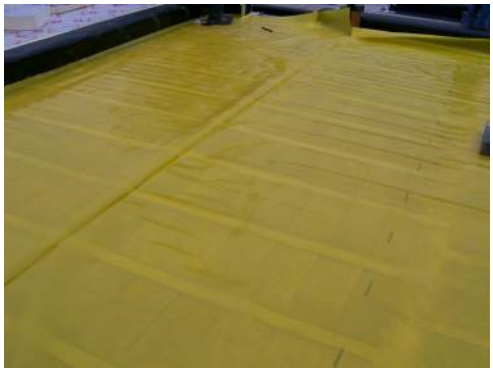
Hive HOMES	Drawing Title: LYNX WARMFLOOR (WITH VENT) 352mm EXTERNAL CAVITY WALL - EcoBead FULL FILL CAVITY INSULATION WITH GAS MEMBRANE	Rev.	Date	By	Description
mck associates limited architecture | building surveying | urban design burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk	Project: HOUSE TYPE STANDARD DETAILS	Drawn: SK	Checked:	Scale: 1:10	Date: OCT 2024
		Job No:		Drawing No: SD-F-GM-2024	Rev:

A4

Low Permeability Gas Membrane

CE Mark to EN 13967:2017







- **Approved for use in NHBC Amber 1**
- **High quality robust co-polymer thermoplastic membrane**
- **Supplied in centre folded sheeting which reduces the risk of cracks in screed**
- **A high performance radon membrane**
- **BBA Certificate 13/5069 and CE Mark 13967:2012**

Description

Visqueen Low Permeability Gas Membrane is a robust co-polymer thermoplastic membrane approved for use in NHBC Amber 1 and radon applications. For ease of identification on site the membrane is coloured yellow. The membrane is flexible, easy to install and supplied in a 4m x 12.5m roll.

The membrane is manufactured as a centre folded product to limit creases which aids jointing and welding applications on site. Centre Folded films can also help to reduce cracks found in structural concrete screeds where traditional multi-folded DPMs are used.

Applications

Visqueen Low Permeability Gas Membrane offers a safe solution for the protection of buildings and occupiers against, damp radon and on NHBC amber 1 site conditions. NHBC Technical Extra Document 20 contains further information on their traffic light application criteria and is available on this link.

BS8485:2015

Visqueen Low Permeability Gas Membrane does NOT meet the criteria of BS8485:2015 and should only be used on the above applications. To ensure correct specification Visqueen's new Gas Protection guide is an easy to use tool and contains a product selector - page 9 - and a gas membrane criteria check sheet on page 6.

Please click here to download Visqueen's Ultimate Gas Protection Guide.

Also, the product is not intended for use where there is risk of hydrostatic pressure.

System components

- Visqueen Double Sided Jointing Tape
- Visqueen Gas Resistant (GR) Foil Tape
- Visqueen Top Hat Units
- Visqueen TreadGUARD1500
- Visqueen Detailing Strip

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Installation

Visqueen Low Permeability Gas Membrane and ancillary components must be installed

in accordance with the recommendations of Building Research Establishment BRE 414 “Protective measures for housing on gas contaminated land”, NHBC guidelines and the Chartered Institute of Environmental Health Ground Gas Handbook.

The membrane should be installed on a smooth grouted surface allowing adequate overlap for jointing between the sheets. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Zedex CPT DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

Radon areas
The membrane can be used as a robust solution under concrete slabs on a top of a smooth blinding layer.

Jointing and Sealing
Visqueen Low Permeability Gas Membrane should be overlapped by at least 150mm and bonded with Visqueen Double Sided Tape. The joint should then be secured with Visqueen Gas Resistant (GR) Foil Jointing Tape. Ensure that the membrane is clean and dry at the time of jointing. Airtight seals should be formed around all service entry points. Visqueen Pre-formed Top Hat Units must be used for sealing service entry pipes. The base of the top hat should be sealed using Visqueen Double Sided Tape and Visqueen GR Foil Jointing Tape should be used to secure the joint.

NB. In demanding site conditions use Visqueen Gas Lap Tape as a high performance alternative to Visqueen GR Foil Jointing Tape.

Storage and Handling
The membrane should be stored under cover in a dry environment. The material is not recommended for applications where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP 102:1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold all jointing tapes should be kept in a warm and dry place until needed. Installation is not recommended below 5°C

Technical Data and CE Mark

Visqueen Low Permeability Gas Membrane complies with the requirements and clauses of EN 13967 - Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic rubber basement tanking sheet - Definitions and characteristics.

British Board of Agrement performed initial inspection of the manufacturing plant and of factory production control and continuous surveillance, assessment and evaluation of factory production control, and issued certificate of constancy of conformity of factory production control. 0836–CPD – 13/F029 applies.

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 31.10.2019

VISQUEEN LOW PERMEABILITY GAS MEMBRANE

Low Permeability Gas Membrane

CE Mark to EN 13967:2017

Product Data

Product Data

Characteristic	Test method	Units	Compliance criteria	Value or Statement
Visible defects	EN 1850 -2	-	Pass/Fail	Pass
Length	EN 1848-2	m	-10%/+10%	12.5
Width	EN 1848-2	m	-2.5%/+2.5%	4
Straightness	EN 1848-2	-	Pass/Fail	Pass
Thickness	EN 1849-2	mm	-12%/+12%	0.5
Grammage	EN 1849-2		-12%/+12%	460
Tensile Strength - MD	EN EN12311		>MLV	15
Tensile Strength - TD	EN EN12311		>MLV	15
Tensile Elongation - MD	EN EN12311	%	>MLV	400
Tensile Elongation - TD	EN EN12311	%	>MLV	400
Joint Strength	EN12317-2	N	MDV	298
Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass
Resistance to impact	EN 12691	mm	>MLV	200
Durability (artificial ageing)	EN 1296 and EN 1928	-	Pass/Fail	Pass
Durability Chemical Resistance	EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shank) CD	EN 12310-1	N	MDV	333
Resistance to tearing (nail shank) MD	EN 12310-1	N	MDV	335
Resistance to static loading	EN 12730	Kg	>MLV	Pass-20kgs
Water vapour transmission - resistance	EN 1931	MNs/g	MDV	2100
Water vapour transmission - permeability	EN 1931		MDV	0.08
Radon Permeability	SP Test Method		MDV	5.477x10-12
Radon Transmittance	SP Test Method	m/s	MDV	5.477x10-12
Carbon Dioxide Permeability	IS0 2782	m/s/Pa	MDV	2.8x10-17
Methane Permeability	IS0 2782	m/s/Pa	MDV	1.13x10-17
Reaction to Fire	EN 13501-1	Class	MDV	F

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 31.10.2019

VISQUEEN LOW PERMEABILITY GAS MEMBRANE

Low Permeability Gas Membrane

CE Mark to EN 13967:2017

Appendix A

About Visqueen

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package – a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

Complete Range, Complete Solution

- Structural Waterproofing
- Damp Proof Course
- Damp Proof Membranes
- Gas Protection and Gas Venting
- Vapour Control Layers
- Stormwater Protection

Download Library

- Technical Datasheet
- Standard Details
- Technical Service
- Visqueen Gas Protection Brochure
- NBS Clauses
- BBA Certificates
- Material Safety Datasheets
- Specification Guide

Find your local stockist

Search our directory of Visqueen specification Specialist Centres to locate your nearest Visqueen Partner.

Technical support throughout your project

We are specialists in our field and can help you specify the correct solutions with the necessary performance levels, in accordance with building regulations.

- Nationwide site support team
- Specification advice
- Installation guidance & project sign off
- System design including CAD details

CPD Seminars and Training Academy

Gas Protection CPD
The specification, technical design, and installation of gas protection systems, enabling the sustainable regeneration of brownfield sites.

Structural Waterproofing CPD
The specification, technical design, and installation of structural waterproofing systems for protection against water and damp ingress in both above and below ground projects.

Visqueen Training Academy
We are now able to offer exclusive in depth training opportunities on a wide variety of Visqueen products at our Training Academy.

Visqueen Special Projects
We provide high-level expertise, comprehensive support and experience in all types of waterproofing and gas protection.

VISQUEEN
Part of RPC bpi group
Heanor Gate Road, Heanor, Derbyshire, DE75 7RG
0333 202 6800 enquiries@visqueen.com www.visqueen.com

The information given in this datasheet is based on data and knowledge correct at the time of printing. Statements made are of a general nature and are not intended to apply to any use or application outside any referred to in the datasheet. As conditions of usage and installation are beyond our control we do not warrant performance obtained but strongly recommend that our installation guidelines and the relevant British Standard Codes of Practice are adhered to. Please contact us if you are in any doubt as to the suitability of application.

APPENDIX J

MMP Tracking Forms

MMP TRACKING SYSTEM

Re-Use on Site of Origin

Site Investigation Report Reference:	Remediation Strategy Report Reference:

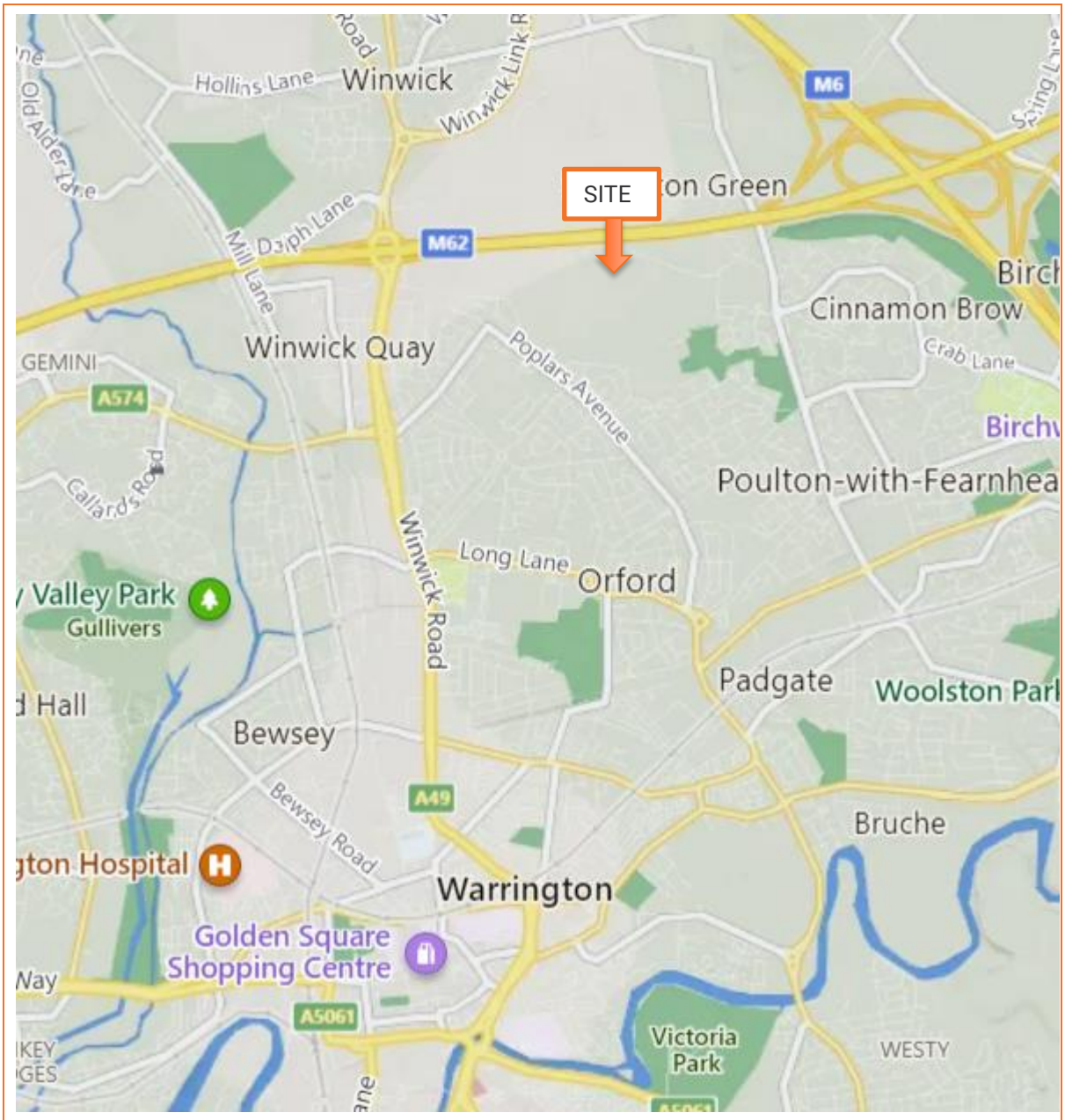
Material Origin	Sample Origin Surveyed	Sample ID	Sampe Type	Sampling Frequency Required (m3)	Date Chemical Analysis Sample Taken	Date Asbestos Sample Taken	Analysis Reference	Stockpile ID	Stockpile Surveyed?	Pass/Fail site criteria?	Asbestos Detected?	Reason for Failure (Remediation Strategy specification)	Material Destination	Destination Surveyed (Drawing Ref)	Notes
e.g. Hotspot TP01	Y/N - Drawing Ref?	e.g. TP01 V1	e.g. Hotspot Valiation Sample	e.g. 1/50m3 (from remedition strategy)	dd/mm/yy	dd/mm/yy	Lab Reference	Location material placed	Y/N - Drawing Ref?	Pass/Fail	Y/N	Details of Failure	Pile Matt, Gardens, Below 600mm etc.	Drawing Ref.	Material placed in line with Regulator approved Remediation Strategy and DoWCoP Compliant MMP.

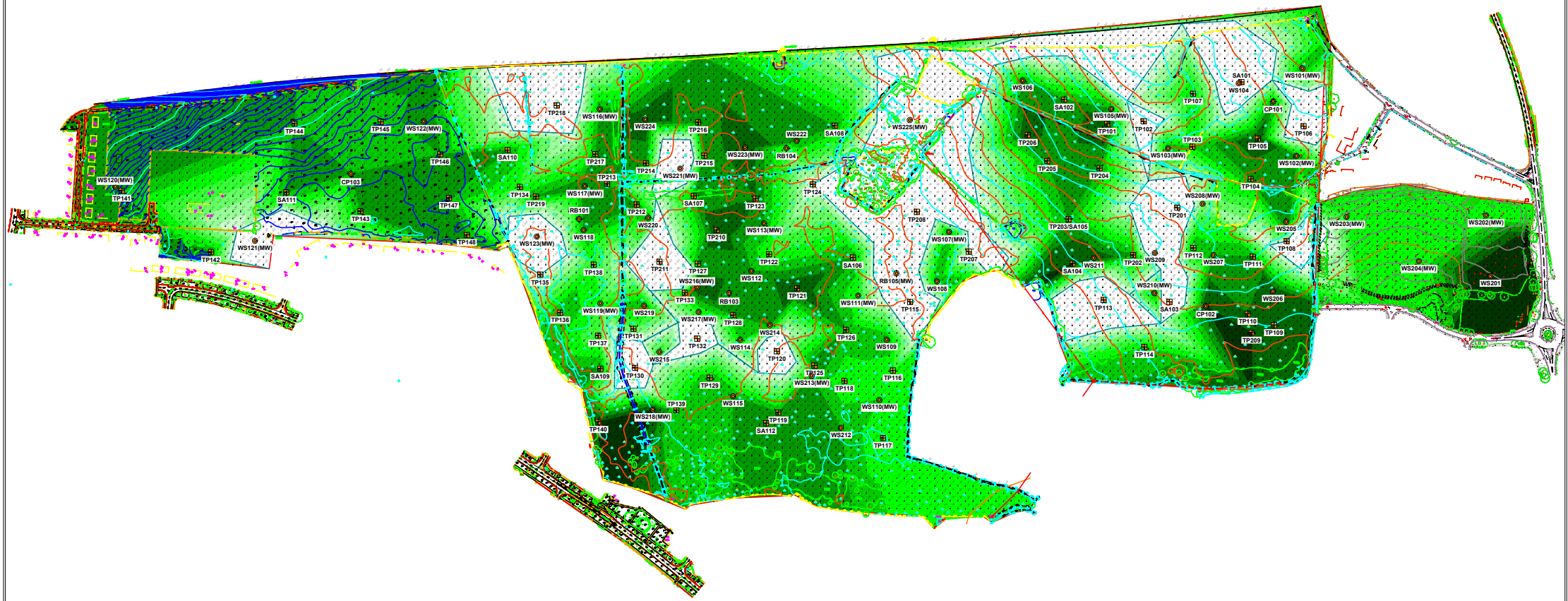
Area Covered		Sample ID	Sampe Type	Sampling Frequency(m3)	Geotechnical Analysis Sample Taken		Analysis Reference	Source	Sampling Frequency(m3)	Pass/Fail site criteria		Reason for Failure (E3P spec)	Material Destination		Notes

APPENDIX K

Donor Site Drawings

DRAWING 15-740-001 – SITE LOCATION PLAN





Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location

Topsoil Depth (m)

- Depth of Topsoil 0.01 - 0.04m
- Depth of Topsoil 0.05 - 0.09m
- Depth of Topsoil 0.10 - 0.14m
- Depth of Topsoil 0.15 - 0.19m
- Depth of Topsoil 0.20 - 0.24m
- Depth of Topsoil 0.25 - 0.29m
- Depth of Topsoil 0.30 - 0.34m
- Depth of Topsoil 0.35 - 0.39m
- Depth of Topsoil >0.40m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVC	24.05.2022	EB	BH
P1	REVB	23.05.2022	EB	BH
P1	REVA	19.04.2022	EB	BH

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 007

Scale: NTS@ A3

Job Title: Peel Hall, North Warrington

Drawing Title: Depth of Topsoil Plan

e3p
Environmental Engineering Partnership Ltd
Taylor Road, Trafford Park
Urmston, Manchester, M41 7JQ
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

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APPENDIX L

Donor Site Phase II Geoenvironmental Site Assessment Report

Phase II Geoenvironmental Site Assessment
Peel Hall, Warrington

Reference:15-740-R1-1
Date: May 2022

PHASE II GEOENVIRONMENTAL SITE ASSESSMENT

Peel Hall
Radley Lane
Warrington
WA2 0TA

Prepared for:
Satnam Group

Report Ref: 15-740-R1-1
Date Issued: May 2022

E3P

Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

+ 44 (0) 161 707 9612
https://e3p.co.uk

Registered in England
CRN: 08725262

QUALITY ASSURANCE

PROJECT NUMBER	15-740		
VERSION	Version 1		
REMARKS	Final		
DATE	May 2022		
PREPARED BY	G. Calvert		
QUALIFICATIONS	BSC, Hons (FGS)		
CHECKED BY	R. Hodnett		
QUALIFICATIONS	BSc (Hons), FGS, MIEnvSci		
AUTHORISED BY	M. Dyer		
QUALIFICATIONS	BSc, FGS, AIEMA, AMIES CEnv		

EXECUTIVE SUMMARY

Site Address	Land at Peel Hall Farm, Warrington, Cheshire, WA2 0TA.
Grid Reference	E 361455 N 391746
Site Area	64.23 Ha.
Proposed Development	E3P understands that Satnam Group has been granted outline planning permission for the development of the Peel Hall Site for a predominantly residential lead end-use that will comprise ~1200 dwellings with associated infrastructure with some commercial and retail development within the masterplan.
Current Site Use	The site is irregular in shape and is located to the south of the M62 at junction 9, to the north of Warrington. The site is open access to the public and encompasses several different parcels including a recreational ground in the east and playing fields in the south east, community centre in the south with the remaining site utilised as an open public space popular with dog walkers. The site is grassland and appears to be cut and maintained regularly. The recreational ground is accessed by a small gravelled car park off Ballater Drive. The recreational ground is relatively uniform in topography with a small grass mound located along the boundaries. Several football pitches are marked out within this sector with two football posts located in the east. The playing fields located in the south east of the site and to the north of the community centre can be accessed by the community centre car park. In the north of this sector lighting, basketball hoops and seating are present, with evidence of Japanese knotweed in the north east. To the north of Radley Lane in the north east of the site, the ground is uneven underfoot from the turning of the ground, with vegetation present on the southern boundary, along Radley Lane. Access can be gained via Mill Lane in the north east and Radley Lane. To the south of Radley Lane, there is a very gentle slope in a southerly direction. The ground remains uneven, with a footpath crossing the site in an east to west direction in the centre of the site. Waterlogged ground and dense were noted in the south of this sector also containing Himalayan Balsam. This was also identified within the area south of Peel Hall. The south of Peel Hall within the densely vegetated area of trees can be accessed via Peel Cottage Lane and via a footpath in the north of the site leading from the pedestrian motorway bridge. Several asbestos cement stockpiles were identified to the north of the drain, which are discoloured orange and green. Historic development was evident in this area with old footings and steel frames to ground level still present. Two Ponds are present to the north of Radley Plantation, with stockpiles of stripped vegetation close by, with evidence they are utilized as animal burrows.

Current Site Use	In the centre of the site, Spa Brook flows in a southerly direction surrounded by reeds and vegetated with semi mature trees. Two stone crossing bridges are present in the centre and further upstream of the brook. A tributary to the brook flows from the densely vegetated area to the south of Peel Hall westwards into the brook. Further west of the site another drain is present transecting the site from north to south also surrounded by reeds, that continue along the western boundary by the residential units. The land between Spa Brook and drain has sporadic areas of reed and grass growth indicative of seasonal ponds. Along the southern boundary in the west of the site, there was evidence of fly-tipped material, including mattresses and window frames and evidence of a bonfire. In addition to this, it appears the residents have extended their boundaries into the field by several metres. To the south of the off-site health centre, more evidence of fly-tipping was recorded, and another stockpile of stripped vegetation was identified, possibly used as an animal burrow. A structure is also present in this area of the site, which is presumed to be in association with the historic sewer disposal plant on site. To the west of the health centre waste and other fly-tipped material was evident along with evidence of a bonfire. A track is present along the northern boundary of the site with access gained via a gate on Elm Road in the north west corner of the site. The track leads to a pump owned by United Utilities. Gas pipeline markers are present along the track and along the northern boundary. Himalayan Balsam was identified in the south of the central sector of the site and along the western boundary of the Radley Plantation. Giant Hogweed was also identified in the south of the central sector.	
Site History	A review of the pertinent Ordnance Survey mapping dating from circa 1850 to the present day confirmed the subject site had remained largely undeveloped agricultural land throughout its mapped history. There are numerous sporadic agricultural type buildings with ancillary access roadways and infrastructure. The sewage disposal plant first appeared in the south west of the site on the mapping series in 1938. A review of the historical land use mapping confirms the presence of small, infilled ponds, field boundaries and other natural and anthropogenic features throughout the mapping series.	
Environmental Setting	**Drift Geology**	West- Shirdley Hill Sand Formation – SAND. Central and East - Glaciofluvial Sheet Deposits, Devensian - Sand and Gravel. South east- Till, Devensian - Diamicton.
	Bedrock Geology	North West- Chester Formation - SANDSTONE, Pebbly (gravelly). Remaining site- Wilmslow Sandstone Formation - SANDSTONE.

	Faults	No faults are recorded within 250m of the site.
	Hydrogeology	Secondary A (drift) overlying a Principal aquifer (solid). One groundwater abstraction has been identified 497m north of the site registered to United Utilities Water PLC and is for public drinking water supply. The site is also located within a Zone 3 (total catchment) source protection zone.
	Hydrology	Spa Brook and several drains and ponds are located on site.
	Flood Risk	Unaffected by flooding from rivers.
Natural Landform and Geomorphology	The site is relatively uniform in topography with the central sector of the site at a slightly lower elevation. Likely areas of cutting processes caused by Spa Brook and several drains in the centre of the site. It is considered that this is the natural landform of the site due to the lack of historical development on site.	
Previous Reports	The following previous reports have been completed for the site: - Phase One Desk Study Report, Environmental Management Solutions. Report ref: EMS5414a, dated August 2015 - Utilities Report, Transport Planning Associates. Report ref: 1506-45/TN/01B, dated June 2016 - Updated Ecological Appraisal & Impact Assessment, Appletons. Report ref: 1820-E1, dated January 2020 A full summary of findings is provided in Section 2.1.	
Utility Locations	A review of online records has identified identifying a LHP (High Pressure) gas main enters the site in the north west transecting the site in a west to east direction along the northern boundary. In addition to a low pressure gas main is present along Peel Cottage Lane and Radley Lane in the north east of the site. Cadent attended the site and marked out the gas main. Electricity infrastructure is present in the north east of the site, within the centre of the site comprising overhead power lines and along the eastern boundaries. A surface water sewer is present along the south-western boundary and within the north-western corner of the site is a combined public sewer, foul sewer, surface water sewer and an abandoned sewer. Surface water sewers are present in the east of site located within the playing fields. Comms clean water pipes are present in Peel Cottage Lane and surrounding roadways of the site. BT infrastructure is present in the west of the site. BT infrastructure is also present along Peel Cottage Lane and the surrounding roadways of the site. Within the south east of the site, BT has been identified crossing the north of the community centre and recreation ground.	

Landfill Sites and Ground Gases	The EA mapping does not record the presence of any historical or licensed landfill within close proximity of the subject site. The closest historical landfill is located 311m south-west of the site named Winwick quay landfill. However, the presence of localised Made Ground and infilled field boundaries on site have the potential to produce hazardous ground gas.
Radon	Unaffected – no special precautions are required.
Coal Mining/Land Stability	Information identified within the Phase 1 Desk Study completed by Environmental Management Solutions obtained a coal mining report for the site. The report highlighted the site is within the zone of influence from workings of four coal seams which ceased in 1992 at depths between 750m and 1130m bgl. However, the Coal Authority has stated the site is not in the likely zone of influence of any present underground coal workings. In addition, there are no known coal mine entries within or within 20 metres of, the boundary of the site.
Hazardous Installations	No hazardous installations that could potentially prejudice the proposed construction of highly sensitive residential dwellings have been identified within influencing distance of the subject site.
Initial Conceptual Site Model	Contaminant Sources • Made Ground (historical buildings, infilled ponds and field boundaries) – Polycyclic aromatic hydrocarbons (PAHs), heavy metals, asbestos-containing material (ACM), ground gas. • Historical agricultural use (spillages of fuel etc.) – PAHs, TPHs, Metals • Historical use as allotment gardens - PAH and heavy metals • Historical use as a sewage disposal plant – Heavy metals, PAHs. Pathways • Direct contact and ingestion • Volatilisation/indoor explosion • Vapour inhalation • Dust inhalation Receptors • Future site users (proposed residential end-users and construction workers) • Buildings (proposed residential units) • Spa Brook, drainage ditches and Underlying aquifer (Principal bedrock aquifer)

GROUND INVESTIGATION

Ground Investigation Works	E3P has completed an intrusive ground investigation comprising: • 67 mechanically excavated trial pits, • 48 window sample boreholes, • 12 BRE Digest 365 Soakaways • 3 cable percussive boreholes, • 4 rotary boreholes, • 27 environmental monitoring installations.
Ground Conditions	**MADE GROUND – 0.00 m bgl to 1.20 m bgl** Made Ground was encountered in 22 exploratory hole locations at depths from ground level to a maximum proven depth of 1.20 bgl (TP124). However, the majority of Made Ground encountered was encountered to a depth <1.00mbgl. Where encountered the Made Ground generally comprised of a reworked topsoil of a dark brown sandy clay or a clayey fine to medium sand. This was often underlain by a reworked slightly gravelly sandy clay or a greyish brown clayey fine to medium sand with gravel of mudstone, sandstone and occasionally brick and rare glass, asphalt, clinker and ash. Within TP211 the reworked clay also contained cobbles of brick. Underlying the topsoil in TP106, gravelly sand was encountered with gravel of sandstone, mudstone and rare fragments of brick and clinker. The deepest area of Made Ground encountered in the central area of the site just south of the drainage ditch within TP124 comprised of a greyish brown clayey fine to medium sand, with a land drain identified at 0.70m bgl. In the area to the south of Peel Hall, within WS225, Made Ground is comprised of a grey mottled brown, slightly gravelly sandy clay, with gravel of clinker, ash sandstone, mudstone and fragments of brick.
	Topsoil- 0.00 m bgl to 0.50 m bgl Natural topsoil was encountered within the majority of the exploratory hole locations with the exception of those identified as reworked topsoil as described above. Topsoil is generally comprised of a brown sandy CLAY with frequent rootlets or a dark brown clayey fine to medium SAND with frequent rootlets.
	DRIFT – 0.00 m bgl to 5.50 m bgl Drift deposits were encountered within all exploratory hole locations. Drift deposits were varied across the site but generally comprised of either firm to stiff brown sandy slightly gravelly CLAY with gravel of mudstone and sandstone or loose to dense clayey slightly gravelly grey or brown fine to medium SAND.

	Loose sands were identified within WS102, WS103, WS104, WS105, WS106, WS110, WS115, WS120, WS121, WS122, WS201, WS205, WS206, WS220, WS224, CP101 and CP102. Loose sands were identified between 0.25-5.45m bgl. Very soft or soft CLAY was identified within SA107 at 0.30-1.00mbgl and TP148 at 1.20-2.50mbgl; the materials within TP148 are likely to be attributed to possible pond fill on site as it comprised of dark grey CLAY with frequent organic matter. Other drift deposits containing organic matter was identified within TP103, WS123, WS204, WS208 and WS212 at depths of between 0.10 -3.30mbgl. Silty CLAY drift deposits were identified within RB101, RB103 and RB105.
	SOLID – 3.80 m bgl to 7.25 m bgl Weathered red sandstone recovered as a GRAVEL was encountered across the site, within exploratory hole locations, CP103, RB101, RB103, RB104, and RB105 at depths between 3.80 m bgl to 7.25 mbgl. WS213 refused at 1.86mbgl. on suspected weathered bedrock.
	GROUNDWATER Groundwater was encountered during the site investigation between 0.30-5.10m bgl. Running sands were encountered across the site at depths of between 0.50m and 2.30mbgl. Saturated drift deposits have been noted across the site.

CONTAMINATED LAND ASSESSMENT

Human Health	A Tier I human health risk assessment has been undertaken using the chemical analysis results of the soils and comparing them to the relevant Tier I criteria. This assessment has not identified the presence of any exceedances. Therefore, the site has been classified as low risk to human health. Asbestos sheeting has been identified in the north-central sector of the site. During the remediation and enabling works, these should be removed from the site by a licensed asbestos removal contractor. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 4.1. Isolated areas of Made Ground on-site will require segregating during the enabling works, and further analysis was undertaken to determine its suitability for retention on-site. Where retained, it is likely a cover system will be required; the remainder of the site can be constructed using the installation of a 300mm growing medium. Chemical analysis of the natural clay drift deposits and natural topsoil has identified these soils acceptable for use as subsoil and topsoil within the proposed garden areas subject to validation testing.
Controlled Waters	Low risk to controlled waters.
Ground Gas	Characteristic Situation 1 (pending completion of gas monitoring).

Potable Water Infrastructure	The assessment of the current ground conditions indicates that PE pipeline would be suitable. However, post-remediation and enabling works ground conditions may be different from those identified during this site investigation. This will need to be confirmed following the completion of a UKWIR risk assessment following remediation and enabling works.

GEOTECHNICAL ASSESSMENT

Underground Obstructions	Significant concrete and brick obstructions have not been encountered during the site investigation. However, relic foundations from the former sewage works and former buildings in the area south of the off-site residential dwelling in the north-central sector of the site are likely to be present. Slabs and metal stations were noted in the northern sector of the site. During a phase of cut-and-fill enabling works to create a developable platform, all below-ground obstructions will require grubbing out to the base of the Made Ground to enable the construction of proposed plots.
Allowable Bearing Pressure	The underlying natural sand deposits have been assessed as being loose to dense. SANDs have been assessed as having a net allowable bearing pressure (ABP) in the order of 70-286 kN/m^2 between 1.00-5.00m bgl. Increasing to a dense relative density with a net ABP of 157-456 kN/m^2 at circa 2.00-7.00mbgl. CLAY drift deposits have been assessed as being firm low strength to very stiff, with very high strength between 1.00m and 5.00mbg with an AMP of between 41-488 kN/m^2.
Foundation Options	It is anticipated that the proposed development can be constructed on a combination of the shallow strip, mass trench fill, and the re-engineering of Made Ground and loose SANDs for the use of Vibro stone columns to support a doubly reinforced shallow strip foundation. Where saturated deposits and running sands are present in a bottom feed, a VSC foundation solution will be required or driven piled foundations. Driven piled foundations will be required in areas of soft CLAYs and in the vicinity of former ponds and where drainage ditches are currently present but will be infilled as part of the proposed development. Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.
Building Floor Slabs	Ground-bearing floor slabs are unlikely to be viable given the anticipated depths or reworked Made Ground > 600 mm and shallow cohesive soils.
Heave Precautions	The site has been assessed to be underlain by low to medium volume change potential clays. A conservative approach should be followed and the site should be deemed to be of medium volume change potential therefore heave precautions are required to the internal face of the external load-bearing walls (within tree influence). An isolated area of high volume change potential has been identified within TP148 and this area should be delineated during remediation and enabling works with further testing completed.

Soakaway Drainage	12 BRE365 Soakaway tests have been completed however, an infiltration rate was only able to be calculated within SA102 where the test was completed within SAND drift deposits; the infiltration rate was noted to be good to moderate within this location. In the remaining locations, and especially where CLAY drift deposits were present, the soakage potential was significantly reduced. It is considered there is a limited potential that soakaway drainage may be suitable for the proposed development.
Sulphate Assessment	Concrete classification will be DS1 AC1s, with the exception of WS225 which is DS2 AC1s.
CBR Design %	Granular soils can be re-engineered to ensure 5% within the subgrade during favourable climatic conditions. Natural clay soils will provide a CBR in the order of 3–5% during drier climatic periods. However, if water is allowed to shed onto the formation, the CBR will reduce to < 2%, which will require specialist engineering of the subgrade.
Cut/Fill	Development levels unknown at this time; however, some cut-and-fill works will be required to prepare the development platform.
Waste Characterisation	Any material that is to be disposed off-site should undergo assessment using Technical Guidance WM3: *Waste Classification – Guidance on the classification and assessment of waste*.

RECOMMENDATIONS

Based on the findings of the Geoenvironmental site assessment, the following additional works are recommended to be completed in due course:

- Further investigation of inaccessible areas.
- Plot-specific foundation schedule (upon receipt of the final development levels).
- CL:AIRE DoW CoP Materials management plan.
- Pre-commencement geotechnical materials testing to confirm earthworks design;
- Geotechnical earthworks design strategy (infrastructure).
- Remediation and enabling earthworks strategy.
- Construction phase Surface Water Management Plan.
- Full three-dimensional earthworks cut/fill model and materials spoil assessment;
- Settlement Analysis for earthworks design; and,
- Build Phase Mitigation Plan and design of specialist ground gas mitigation measures.

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DRAWING LIST

15-740-001 - Site Location Plan
15-740-003 - Historical Features Plan
15-740-004 - Site Features Plan
15-740-005 - Exploratory Hole Location Plan
15-740-006 - Depth of Made Ground Plan
15-740-007 - Depth of Topsoil Plan
15-740-010 - Conceptual Site Model
15-740-014 - Loose Sands and Soft Clay Plan
15-740-016 – Saturated and Running Sands Plan

1. INTRODUCTION

1.1. BACKGROUND

E3P has been commissioned by the Satnam Group to undertake a detailed Phase II Geoenvironmental Site Assessment for a parcel of land located to the south of the M62 at junction 9, in the north of Warrington.

This report is required to determine potential contaminated land liabilities, remediation requirements and geotechnical engineering works that will be required as part of the proposed development for a proposed low-rise residential development.

1.2. PROPOSED DEVELOPMENT

E3P understands that Satnam Group has been granted outline planning permission for the development of the Peel Hall Site for a predominantly residential lead end-use that will comprise of circa 1200 dwellings with associated infrastructure with some commercial and retail development within the masterplan. A proposed development plan has not been provided to E3P at this time.

1.3. OBJECTIVES

The objectives of the Geoenvironmental assessment are as follows:

- Review historical plans, geology, hydrogeology, site sensitivity, floodplain issues, mining records and any local authority information available in order to complete a desk study in line with Environment Agency (EA) document *Land Contamination:Risk Management (LCRM) (2019).*
- Undertake a preliminary stage of sampling and analysis to provide an overview of environmental issues identified.
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- Assess the geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- Provide recommendations regarding future works required.

1.4. SCOPE OF WORKS

The scope of work includes the following elements:

- Detailed review of historic information;
- Design of suitable intrusive ground investigation;
- Window sample probeholes with, and construction of, environmental monitoring installations;
- Deep cable percussive boreholes;
- Rotary Boreholes with groundwater monitoring installations where cable percussive boreholes were not viable due to access restraints;

- Mechanically excavated trial pits;
- In-situ geotechnical testing;
- Chemical and geotechnical laboratory analysis;
- Groundwater monitoring and sampling
- Surface water sampling;
- Ground gas monitoring;
- Contamination risk assessment and conceptual site model;
- Geotechnical assessment and interpretation; and
- Factual and interpretive reporting.

1.5. LIMITATIONS

The limitations of this report are presented in Appendix I.

1.6. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.

2. GROUND INVESTIGATION

2.1. PREVIOUS REPORTS

Previously completed reports and permanent environmental information about the site are discussed below:

PHASE ONE DESK STUDY REPORT, ENVIRONMENTAL MANAGEMENT SOLUTIONS. REPORT REF: EMS5414A, DATED AUGUST 2015

- The majority of the site area is occupied by disused agricultural fields. The land surface was very rough as if it had been ploughed before allowing it to become overgrown. Some parts of the fields were overgrown with bushes and young trees which had not been cleared. A number of overgrown mature hedges were present around watercourses. Dense reeds were also present around watercourses, preventing detailed inspection of these features.

- The desk study has shown the majority of the site to historically have been used only for agricultural purposes. The site as a whole is considered to have a low risk of contamination.

- Several areas within the site have been identified as having an increased risk of contamination. They include an area of former farm buildings, where chrysotile asbestos cement has been identified on the surface of the ground, an area of former masts, an area of former allotments, and a former sewage disposal plant.

- The bedrock deposits of Sherwood Sandstone Supergroup (Bunter Pebble Beds and Wilmslow Sandstone Formation) which underlie the site, are listed as Principal Aquifers. The overlying superficial deposits (Shirdley Hill Sand Formation, Glaciofluvial Sheet Deposits, and Glaciofluvial Deposits) are considered to be Secondary-A-Aquifers. The Till, marked only in a small south-eastern corner of the site, is considered to be Unproductive Strata.

- The closest identified groundwater abstraction is an abstraction from a well/borehole at a location 497 m north of the site. The abstraction is registered to United Utilities Water PLC and is for public drinking water supply. This is listed as active. The whole site is within a Zone 3 (total catchment) source protection zone.

- The closest identified surface water bodies are a number of drains and ponds located within the site itself. The only named surface water body at the site is the Spa Brook which runs from north to south through the centre of the site, to sink beneath the adjacent housing estate, probably in an artificial culvert.

- Borehole logs held by the BGS suggest that standard strip/trench/pad foundations will be appropriate across the majority of the site.

- The site is not within an area, as described by the BRE report BR211, where radon protective measures are required within new dwellings or extensions.

UTILITIES REPORT, TRANSPORT PLANNING ASSOCIATES. REPORT REF: 1506-45/TN/01B, DATED JUNE 2016.

- The asset location plans provided by the utility distributors show evidence that at least three of the services will directly affect the proposed development. United Utilities, National Grid and Scottish Power have apparatus crossing the development site, which will either need diversion or incorporating into the site layout.

- Points of connection will need to be confirmed or formalised for utilities before construction.

UPDATED ECOLOGICAL APPRAISAL & IMPACT ASSESSMENT, APPLETONS. REPORT REF: 1820-E1, DATED JANUARY 2020

- There will be no direct effects on Radley Plantation and Pond LWS, however current semi-natural habitats within the application site that directly abut the LWS woodland edge will be partially displaced by proposed playing fields, resulting in a slight potential impact to woodland structure. The Woodland Trust and County Ecologist/Consulting Body will be consulted as part of the planning process to further assess the potential impacts of proposals on Radley Plantation and Pond LWS.

- The evaluation of predicted effects has shown that a Moderate Adverse effect is predicted on the site as a whole through the loss of common but extensive semi-natural habitats during construction. These effects are partially reversible through the enhancement of retained habitats and provision of new habitats.

- Critical to a moderate adverse effect being predicted, is the overall low diversity and rankness of the plant communities on site, and the artificial nature of the woodlands effected by proposals. Whilst the site is large and losses extensive and of very high magnitude, the individual habitats affected are essentially poor. Extensive habitat degradation in the form of fly tipping and invasive species further reduces the ecological value of the site.

- Faunal species/species groups of conservation concern recorded on site include foraging bats, breeding birds and a small population of breeding great crested newts.

- Species for which on-site mitigation is not possible include skylark and noctule bat, which are likely to be displaced to surrounding open agricultural land.

- Himalayan Balsam was identified in the northern central, northern south-east, and southern central sectors of the site. Giant hogweed has been identified in the southern central sector of the site.

2.2. GENERAL OVERVIEW

A ground investigation has been designed based on the findings of the desk study, with exploratory holes advanced to target specific potential contaminant sources identified within the previous site investigations. The investigation has also been used to collect geotechnical information to assist in the design and construction of the proposed development.

Exploratory fieldwork was completed between 21st March 2022 and 1st April 2022. The works are summarised in Table 2.1.

2.3. LIMITATIONS OF THE INVESTIGATION

During the site investigation, the site was noted to be waterlogged in large areas of the site and as such access to these areas was restricted. Additionally, areas within the south-east, south and northern central sectors of the site comprised areas of Himalayan Balsam and Giant Hogweed which stopped access to these areas. Areas of dense woodland restricted access to the northern central sector of the site, along with electricity infrastructure and a residential property. Dense woodland also restricted access to areas within the south and south-east of the site.

Works were restricted along the northern boundary of the site due to the presence of a high pressure gas main. Overhead electricity infrastructure was also present across the central sector of the site.

Works were not completed in the south of the site in the vicinity of the current community centre.

2.4. SCOPE OF GROUND INVESTIGATION

TABLE 2.1 SUMMARY OF FIELDWORK

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground within the Playing Fields in the East of the Site and in the Vicinity of Former Ponds.	WS201	Window Sample Probehole	5.45	N/A
	WS202		5.45	2.00-4.00
	WS203		3.15	1.00-2.50
	WS204		5.45	2.00-3.00
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground Within the North-Eastern Field.	WS101	Window Sample Probehole	5.45	1.00–4.00
	WS102		5.45	0.50-3.50
	WS103		5.45	1.00–3.00
	WS104		5.45	N/A
	WS105		5.45	0.50-2.50
	WS106		5.45	N/A
	TP101 – TP107	Mechanically Excavated Trial Pit	2.10	N/A
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground Within the Eastern Field and in the Vicinity of Former Ponds and Field Boundaries.	WS205	Window Sample Probehole	5.45	N/A
	WS206		3.45	N/A
	WS207		5.45	N/A
	WS208		5.45	1.00-5.00
	WS209		4.38	N/A
	WS210		2.38	1.00-2.00
	WS211		4.38	N/A

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground Within the Eastern Field and in the Vicinity of Former Ponds and Field Boundaries.	TP108 – TP114, TP201 – TP206, TP209	Mechanically Excavated Trial Pit	2.30	N/A
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Vicinity of Former Buildings in the North of the Site.	WS225	Window Sample Probehole	5.00	0.50-4.50
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Central Sector of the Site.	WS107	Window Sample Probehole	3.25	1.00-3.00
	WS108		3.12	N/A
	WS109		2.75	N/A
	WS110		3.39	0.50-2.50
	WS111		2.38	0.50-1.50
	WS112		2.94	N/A
	WS113		2.92	0.50-2.50
	WS114		3.38	N/A
	WS115		2.39	N/A
	WS212		3.02	N/A
	WS213		1.86	0.50-1.50
	WS214		2.11	N/A
	WS215		3.16	N/A
	WS216		3.25	1.00-2.00
	WS217		3.28	0.50-3.00
	WS218		2.38	1.00-2.00
	WS219		3.18	N/A
	WS220		3.15	N/A
	TP115-TP133, TP139, TP207-TP208, TP210-TP212	Mechanically Excavated Trial Pit	2.70	N/A
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Northern Central Sector of the Site.	WS221	Window Sample Probehole	4.15	2.00-4.00
	WS222		4.38	N/A
	WS223		5.15	1.00-3.50
	WS224		5.45	N/A

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Northern Central Sector of the Site.	TP214-TP216	Mechanically Excavated Trial Pit	2.00	N/A
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Western Central Sector of the Site.	WS116	Window Sample Probehole	5.10	0.50-4.50
	WS117		4.45	2.00-4.00
	WS118		4.44	N/A
	WS119		4.31	2.00-4.00
	WS123		4.18	1.00-4.00
General Ground Conditions Including the Presence/Nature of Obstructions and Made Ground in the Western Central Sector of the Site.	TP134-TP138, TP140, TP213, TP217-TP219	Mechanically Excavated Trial Pit	2.40	N/A
General Ground Condition in North Western Sector of the Site.	WS120	Window Sample Probehole	4.31	0.50-2.50
	WS121		5.45	1.00-2.00
	WS122		4.45	1.00-4.00
	TP141-TP148	Mechanically Excavated Trial Pit	2.50	N/A
Investigation of Deeper Soil Horizons	CP101	Cable Percussive Borehole	6.50	N/A
	CP102		7.00	N/A
	CP103		7.00	N/A
	RB101	Rotary Borehole	7.25	N/A
	RB103		6.15	N/A
	RB104		5.25	N/A
	RB105		5.25	0.50-5.00
BRE365 Soakaways	SA101-SA110	BRE365 Soakaways	2.00	N/A

Mechanically excavated trial pits were advanced to investigate ground conditions and to retrieve environmental samples, spatially distributed to offer the maximum site coverage whilst also being advanced to target specific contaminant sources.

Window sample probeholes were advanced to undertake in-situ detailed geotechnical testing, obtain environmental samples and install groundwater and ground gas monitoring wells.



Cable percussive boreholes were advanced to undertake the investigation of deeper soil horizons (in excess of 6.0m) with extensive in-situ geotechnical testing to determine the relative densities of granular soils and undrained strengths of clays. Due to soft, saturated ground conditions and associated access constraints, a series of rotary boreholes were advanced to investigate deeper soil horizon and the depth of bedrock, where cable percussive drilling rigs could not access. Deeper groundwater and environmental monitoring wells were placed in selected locations to confirm hydrogeological conditions and assist with extensive environmental monitoring within the sub-stratum.

The sampling locations are illustrated in Drawing 15-740-005 (Appendix III). The ground conditions encountered are indicated on the logs, which are provided in Appendix V.

Return visits were made to monitor installations for groundwater level and gas concentrations. In addition, selected wells were purged and samples of groundwater recovered for chemical analysis.

2.5. IN-SITU STANDARD PENETRATION TESTING (SPT)

In-situ geotechnical testing was conducted using the standard penetration test (SPT) and, where the ground is granular, a 60° cone (SPT(C)) was used instead of the sampling tube. The results are shown in the probehole logs in Appendix V and presented in Table 3.6 and discussed in Section 5.

2.6. PERMEABILITY TESTS

Twelve in-situ BRE 365 Soakaway tests were undertaken over a 48 hour period within trial pits completed as SA101-SA112. Soil infiltration was taken over the wetted area from between 75% and 25% of the effective depth The results are presented in Table 3.9 and the test certificates are included within Appendix IX.

2.7. LABORATORY ANALYSIS

Selected soil samples were submitted for a range of chemical analysis comprising:

- Metals.
- pH, total sulphate, water-soluble sulphate (2:1 extract).
- Sulphide.
- Cyanide.
- Phenols.
- Total and speciated polycyclic aromatic hydrocarbons (PAHs).
- Semi Volatile Organic Compounds (SVOC).
- Volatile Organic Compounds (VOC).
- Asbestos identification and quantification.
- Speciated and banded total petroleum hydrocarbon (TPH).

I2 Analytical undertook the analytical work and the testing results are included in Appendix VI and discussed in Section 4.

Selected samples were submitted to PSL Laboratory where the following geotechnical tests were undertaken:

- Atterberg limits determinations;
- Particle size distribution;
- One dimensional consolidation; and
- Single-stage triaxial tests.

Laboratory analysis sheets are included in Appendix VIII and are summarised in Section 3.

3. GROUND AND GROUNDWATER CONDITIONS

3.1. SUMMARY OF GROUND CONDITIONS

The ground investigation generally confirms the published geology and identifies the strata set out in Table 3.1.

TABLE 3.1 SUMMARY OF STRATA

HOLE	DEPTH TO STRATUM (m bgl)				
	MADE GROUND	TOPSOIL	SAND	CLAY	WEATHERED SANDSTONE GRAVEL
SA101	0.00-0.30	-	1.60-2.00	0.30-1.60	-
SA102	-	0.00-0.30	0.30-1.40	-	-
SA103	0.00-0.50	-	1.50-1.80	0.50-1.50	-
SA104	-	0.00-0.40	0.40-1.60	-	-
SA105/TP203	-	0.00-0.30	0.60-2.00	0.30-0.60	-
SA106	-	0.00-0.30	0.30-1.30	-	-
SA107	-	0.00-0.30	-	0.30-1.50	-
SA108	-	0.00-0.30	-	0.30-1.50	-
SA109	-	0.00-0.30	-	0.30-1.70	-
SA110	-	0.00-0.30	-	0.30-1.80	-
SA111	-	0.00-0.30	0.50-1.40	-	-
SA112	-	0.00-0.30	0.30-1.30	1.30-1.70	
TP101	–	0.00–0.40	0.40–2.10	–	–
TP102	0.00–0.90	–	–	0.90–1.80	–
TP103	–	0.00–0.25	0.25–1.90	–	–
TP104	–	0.00–0.30	–	0.30–1.70	–
TP105	–	0.00–0.40	0.40–2.00	–	–
TP106	0.00–0.80	–	–	0.80–1.90	–
TP107	–	0.00–0.25	0.25–2.10	–	–
TP108	0.00–1.10	–	–	1.10–1.85	–
TP109	–	0.00–0.35	–	0.35–1.75	–
TP110	–	0.00–0.35	0.35–1.80	1.80–2.20	–
TP111	–	0.00–0.30	–	0.30–1.90	–
TP112	–	0.00–0.30	0.30–1.40	–	–
TP113	0.00–0.80	–	–	0.80–2.20	–
TP114	–	0.00–0.25	0.25–2.30	–	–
TP115	0.00–0.30	–	0.30–1.30	1.30–1.75	–
TP116	–	0.00–0.20	0.20–2.30	–	–

HOLE	DEPTH TO STRATUM (m bgl)				
	MADE GROUND	TOPSOIL	SAND	CLAY	WEATHERED SANDSTONE GRAVEL
TP117	–	0.00–0.20	0.20–1.00 1.80 -2.40	1.00–1.80	–
TP118	–	0.00–0.20	0.20–0.50 1.80-2.00	0.50–1.80	–
TP119	–	0.00–0.30	2.10–2.25	0.30–2.10	–
TP120	0.25–0.90	–	1.50–2.30	0.90–1.50	–
TP121	–	0.00–0.40	–	0.40–2.05	–
TP122	–	0.00–0.20	0.20–0.70	0.70–2.15	–
TP123	–	0.00–0.35	0.35–0.80	0.80–2.00	–
TP124	0.00–1.20	–	–	1.20–2.20	–
TP125	–	0.00–0.35	0.35–0.80 1.40-2.00	0.80–1.40	–
TP126	–	0.00–0.30	0.30–1.20 1.40-2.25	1.20–1.40	–
TP127	–	0.00–0.30	–	0.30–1.95	–
TP128	–	0.00–0.30	–	0.30–2.05	–
TP129	–	0.00–0.30	–	0.30–1.80	–
TP130	0.00–0.70	–	–	0.70–1.85	–
TP131	–	0.00–0.15	–	0.15–1.80	–
TP132	0.00–0.40		–	0.40–2.00	–
TP133	–	0.00–0.25	0.25–0.50	0.50–2.05	–
TP134	–	0.00–0.20	–	0.20–1.90	–
TP135	0.20–0.60	–	–	0.60–2.10	–
TP136	–	0.00–0.30	–	0.30–2.00	–
TP137	–	0.00–0.15	–	0.15–1.70	–
TP138	–	0.00–0.20	–	0.20–1.75	–
TP139	–	0.00–0.25	–	0.25–2.10	–
TP140	–	0.00–0.40	1.30–2.40	0.40–1.30	–
TP141	–	0.00–0.30	0.30–2.40	–	–
TP142	–	0.00–0.30	0.30–1.10	1.10–2.00	–
TP143	–	0.00–0.30	0.30–1.90	–	–
TP144	–	0.00–0.30	0.30–1.10	1.10–2.20	–
TP145	–	0.00–0.25	0.25–1.10	1.10–1.70	–
TP146	–	0.00–0.30	0.30–1.60	1.60–1.75	–
TP147	–	0.00–0.30	0.30–0.75	0.75–2.40	–
TP148	–	0.00–0.30	–	0.30–2.50	–

HOLE	DEPTH TO STRATUM (m bgl)				
	MADE GROUND	TOPSOIL	SAND	CLAY	WEATHERED SANDSTONE GRAVEL
TP201	0.00–0.60	–	–	0.60–1.80	–
TP202	–	0.00–0.30	–	0.30–1.60	–
TP204	–	0.00–0.30	0.30–1.50	–	–
TP205	–	0.00–0.30	0.30–1.50	–	–
TP206	–	0.00–0.40	0.40–1.70	–	–
TP207	0.00–0.30	–	0.30–1.00	1.00–1.80	–
TP208	0.00–0.40	-	0.40–0.80	0.80–2.00	–
TP209	–	0.00–0.40	0.40–1.80	–	–
TP210	–	0.00–0.40	0.40–0.70	0.70–1.70	–
TP211	0.00–0.60	–	–	0.60–1.70	–
TP212	–	0.00–0.30	–	0.30–1.40	–
TP213	–	0.00–0.30	0.30–0.50	0.50–1.60	–
TP214	–	0.00–0.30	0.30–0.50	0.50–1.70	–
TP215	–	0.00–0.30	0.30–1.60	–	–
TP216	–	0.00–0.30	0.30–0.80	0.80–2.00	–
TP217	–	0.00–0.30	–	0.30–1.70	–
TP218	0.00–0.30	-	–	0.30–1.80	–
TP219	–	0.00–0.30	–	0.30–1.30	–
WS101	–	0.00–0.30	1.80–2.00	0.30–1.80 2.00-5.45	–
WS102	–	0.00–0.30	0.30–5.45	–	–
WS103	–	0.00–0.30	0.30–5.45	–	–
WS104	0.00–0.60	–	0.60–5.45	–	–
WS105	–	0.00–0.30	0.30–5.45	–	–
WS106	–	0.00–0.30	0.50–5.45	0.30–0.50	–
WS107	–	0.00–0.30	0.30–0.60	0.60–3.25	–
WS108	–	0.00–0.30	2.00–3.12	0.30–2.00	–
WS109	–	0.00–0.30	0.30–2.75	–	–
WS110	–	0.00–0.25	0.25–3.39	–	–
WS111	–	0.00–0.20	0.20–2.38	–	–
WS112	–	0.00–0.30	0.30–0.60 2.70-2.94	0.60–2.70	–
WS113	–	0.00–0.30	0.30–0.60 2.80-2.92	0.60–2.80	–
WS114	–	0.00–0.25	2.60–3.38	0.25–2.60	–

HOLE	DEPTH TO STRATUM (m bgl)				
	MADE GROUND	TOPSOIL	SAND	CLAY	WEATHERED SANDSTONE GRAVEL
WS115	–	0.00–0.30	0.60–2.39	–	–
WS116	–	0.00–0.30	0.30–0.90 4.40-4.50	0.90–4.40 4.50-5.10	–
WS117	–	0.00–0.35	–	0.35–4.45	–
WS118	–	0.00–0.30	–	0.30–4.44	–
WS119	–	0.00–0.20	–	0.20–4.31	–
WS120	–	0.00–0.30	0.30–2.80 3.20-3.70	2.80–3.20 3.20-4.31	–
WS121	0.00–0.40	–	0.55–2.80 3.10-5.45	0.40–0.55 2.80-3.10	–
WS122	–	0.00–0.35	0.35–2.00	2.00–4.45	–
WS123	–	–	–	0.00–4.18	–
WS201	–	0.00–0.50	0.50–3.60 4.00–5.45	3.60–4.00	–
WS202	–	0.00–0.20	3.10–5.45	0.20–3.10	–
WS203	–	0.00–0.20	2.20–3.15	0.20–2.20	–
WS204	–	0.00–0.20	4.00–5.45	0.20–4.00	–
WS205	–	0.00–0.35	0.35–2.40 3.20-5.45	2.40–3.20	–
WS206	–	0.00–0.40	0.40–2.50	2.50–3.45	–
WS207	–	0.00–0.30	2.00–2.60 3.10-4.00	0.30–2.00 2.60-3.10 4.00-5.45	–
WS208	–	0.00–0.10	0.30–0.40	0.10–0.30 0.40-5.45	–
WS209	0.00–0.90	-	–	0.90–4.38	–
WS210	–	0.00–0.30	0.30–2.38	–	–
WS211	–	0.00–0.40	2.90–3.80	0.40–2.90 3.80-4.38	–
WS212	–	0.00–0.30	2.00–3.02	0.30–2.00	–
WS213	–	0.00–0.30	0.30–0.80 1.00–1.50 1.80-1.86	0.80–1.00 1.50-1.80	–
WS214	–	0.00–0.30	–	0.30–2.11	–
WS215	–	0.00–0.20	–	0.20–3.16	–
WS216	–	0.00–0.40	3.00–3.25	0.40–3.00	–
WS217	–	0.00–0.20	3.00–3.28	0.20–3.00	–
WS218	–	0.00–0.40	1.80–2.38	0.40–1.80	–

HOLE	DEPTH TO STRATUM (m bgl)				
	MADE GROUND	TOPSOIL	SAND	CLAY	WEATHERED SANDSTONE GRAVEL
WS219	–	0.00–0.30	3.00–3.18	0.30–3.00	–
WS220	–	0.00–0.30	0.30–1.50 2.45–3.15	1.50–2.45	–
WS221	0.00–0.30	–	3.00–3.10 4.00-4.15	0.30–3.00 3.10-4.00	–
WS222	–	0.00–0.30	0.30–1.80 2.00-2.30 3.00-4.38	1.80–2.00 2.30-3.00	–
WS223	–	0.00–0.40	0.40–1.60 2.40-5.15	1.60–2.40	–
WS224	–	0.00–0.40	0.40–2.00 3.00-5.45	2.00–3.00	–
WS225	0.00–0.90	–	1.20–1.70 2.00-3.80 4.30-5.00	0.90–1.20 1.70-2.00 3.80-4.30	–
CP101	–	0.00–0.30	0.70–3.20 4.80–6.50	0.30–0.70 3.20-4.80	–
CP102	–	0.00–0.40	0.40–4.10 5.50–7.00	4.10–5.50	–
CP103	–	0.00–0.30	0.30–2.50 5.10-5.40	2.50–5.10	5.40–7.00
RB101	–	0.00–0.20	–	0.20–4.20	4.20–7.25
RB103	–	0.00–0.20	–	0.20–4.50	4.50–6.15
RB104	–	0.00–0.20	0.20–3.70	3.70–4.10	4.10–5.25
RB105	–	0.00–0.20	–	0.20–3.80	3.80–5.25

3.2. MADE GROUND

Made Ground was encountered in 22 exploratory hole locations at depths from ground level to a maximum proven depth of 1.20 bgl (TP124). However, the majority of Made Ground encountered was encountered to a depth <1.00mbgl.

Where encountered the Made Ground generally comprised of a reworked topsoil of a dark brown sandy clay or a clayey fine to medium sand. This was often underlain by a reworked slightly gravelly sandy clay or a greyish brown clayey fine to medium sand with gravel of mudstone, sandstone and occasionally brick and rare glass, asphalt, clinker and ash. Within TP211 the reworked clay also contained cobbles of brick.

Underlying the topsoil in TP106, a gravelly sand was encountered with gravel of sandstone, mudstone and rare fragments of brick and clinker. The deepest area of Made Ground encountered in the central area of the site just south of the drainage ditch within TP124 comprised of a greyish brown clayey fine to medium sand, with a land drain identified at 0.70m bgl.

In the area to the south of Peel Hall, within WS225, Made Ground is comprised of a grey mottled brown slightly gravelly sandy clay, with gravel of clinker, ash sandstone, mudstone and fragments of brick.

A Depth of Made Ground Plan is presented as Drawing 15-740-006 in Appendix III.

3.3. TOPSOIL

Natural topsoil was encountered within the majority of the exploratory hole locations with the exception of those identified as reworked topsoil as described above.

Topsoil is generally comprised of a brown sandy CLAY with frequent rootlets or a dark brown clayey fine to medium SAND with frequent rootlets.

3.4. DRIFT DEPOSITS

Drift deposits were encountered within all exploratory hole locations.

Drift deposits were varied across the site but generally comprised of either firm to stiff brown sandy slightly gravelly CLAY with gravel of mudstone and sandstone or loose to dense clayey slightly gravelly grey or brown fine to medium SAND.

Loose sands were identified within WS102, WS103, WS104, WS105, WS106, WS110, WS115, WS120, WS121, WS122, WS201, WS205, WS206, WS220, WS224, CP101 and CP102. Loose sands were identified between 0.25-5.45m bgl.

Very soft or soft CLAY was identified within SA107 at 0.30-1.00mbgl and TP148 at 1.20-2.50mbgl; the materials within TP148 are likely to be attributed to possible pond fill on site as it comprised of dark grey CLAY with frequent organic matter.

Other drift deposits containing organic matter was identified within TP103, WS123, WS204, WS208 and WS212 at depths of between 0.10 -3.30mbgl.

Silty CLAY drift deposits were identified within RB101, RB103 and RB105.

Drift deposits were noted to be saturated on numerous occasions, with running sands also encountered during the ground investigation, the details of which are included within Table 3.2.

3.5. SOLID GEOLOGY

Weathered red sandstone recovered as a GRAVEL was encountered across the site, within exploratory hole locations, CP103, RB101, RB103, RB104, and RB105 at depths between 3.80 m bgl to 7.25 mbgl.

WS213 refused at 1.86mbgl. on suspected weathered bedrock.

3.6. GROUNDWATER

Groundwater strikes were encountered throughout the site. The depth of the strikes are shown on the exploratory hole records in Appendix V and are summarised in Table 3.2.

TABLE 3.2 SUMMARY GROUNDWATER STRIKES

LOCATION	DEPTH TO STRIKE (m)	NOTES
TP101	1.80	Seepage / Possible running sand
TP103	0.60	Perched
TP103	1.80	Strike - Slow ingress
TP105	0.60	Perched
TP105	0.90	Possible running sand
TP107	1.80	Possible running sand
TP110	1.70	Possible running sand
TP113	1.70	Seepage
TP114	1.20	Possible running sand
TP115	0.70	Strike - Moderate ingress
TP115	1.10	Possible running sand
TP116	0.50	Seepage
TP117	0.60	Seepage
TP117	1.90	Strike - Slow ingress
TP118	1.60	Seepage
TP119	1.40	Seepage
TP120	0.60	Land Drain - Slow ingress
TP120	0.90	Possible running sand. Strike - Moderate ingress
TP121	1.10	Strike - Slow ingress
TP122	1.80	Strike - Moderate ingress
TP123	0.80	Perched on CLAY
TP123	1.85	Strike - Slow ingress
TP124	0.70	Land drain - Seepage
TP124	1.50	Possible running sand
TP125	1.40	Perched on CLAY
TP128	1.95	Seepage
TP129	0.00-0.30	Saturated Ground
TP129	0.60	Seepage
TP129	1.65	Seepage
TP132	0.40	Land Drain - Slow ingress
TP134	1.10	Seepage
TP135	0.40	Land Drain - Moderate ingress
TP135	0.80	Strike - Fast ingress
TP140	2.30	Seepage and possible running sand

LOCATION	DEPTH TO STRIKE (m)	NOTES
TP141	2.10	Seepage
TP146	1.45	Possible running sand
TP147	1.80	Seepage
TP148	1.25	Strike - Slow ingress
TP203 / SA105	1.90	Possible running sand
TP205	1.40	Possible running sand
TP206	1.70	Possible running sand
TP207	0.90	Possible running sand
TP208	0.40	Land Drain - Seepage
TP209	1.10	Possible running sand
TP210	0.70	Seepage
TP212	1.40	Seepage
TP214	1.70	Seepage
TP215	0.50	Possible running sand
TP216	0.70	Possible running sand
TP217	1.70	Seepage
TP218	0.30	Land Drain - Seepage
WS101	3.00	Strike; materials saturated from this depth to base of borehole.
WS102	2.00	Strike; materials saturated from this depth to base of borehole.
WS104	2.00	Strike; materials saturated from this depth to base of borehole.
WS105	1.00	Strike
WS105	3.00	Strike
WS106	2.00	Strike
WS110	1.00	Strike; materials saturated from this depth to base of borehole.
WS112	2.00	Strike
WS114	3.00	Strike; materials saturated from this depth to base of borehole.
WS115	2.00	Strike; materials saturated from this depth to base of borehole.
WS116	4.00	Saturated deposits identified.
WS116	4.20	Strike
WS117	3.00	Saturated deposits identified.
WS117	3.20	Strike
WS120	2.00	Strike

LOCATION	DEPTH TO STRIKE (m)	NOTES
WS120	3.00	Strike
WS120	3.20-3.70	Saturated deposits
WS121	2.00	Strike
WS122	1.80	Strike
WS123	3.00	Strike
WS201	1.00	Strike
WS202	3.00	Strike
WS202	3.10-5.45	Saturated deposits
WS204	3.00	Strike; materials saturated from this depth to base of borehole.
WS205	4.00	Strike; materials saturated from this depth to base of borehole.
WS206	1.50	Strike
WS209	0.90	Land Drain - Strike
WS209	4.00	Strike
WS210	1.80	Strike
WS211	2.00	Strike
WS215	3.00	Strike
WS216	2.80	Strike
WS216	3.00	Saturated deposits identified.
WS217	2.00	Strike; materials saturated from this depth to base of borehole.
WS218	1.00	Strike
WS219	2.80	Strike
WS220	2.00	Strike; materials saturated from this depth to base of borehole.
WS222	0.50	Strike
WS223	1.00	Strike. Saturated deposits throughout borehole.
WS224	2.00	Strike; materials saturated from this depth to base of borehole.
WS225	2.20	Strike
WS225	4.00	Strike
CP101	3.00	Strike
CP102	3.00	Strike
CP103	0.50	Strike
CP103	5.10	Strike

Monitoring was undertaken using an electronic dip meter and interface probe to record the depth to groundwater and the thickness of any free-phase hydrocarbon product, if present.

3.7. VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

Visual and olfactory evidence of potential contamination has been identified during the site investigation and these are summarised in Table 3.3.

TABLE 3.3 SUMMARY VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

LOCATION	DEPTH (m)	STRATUM	NOTES
TP135	0.80	Water ingress	Slight organic odour within water strike.

3.8. SOIL CONSISTENCY

Undrained shear strength values were measured using both field hand shear vane tests and laboratory undrained triaxial tests. Results of the tests are presented in Table 3.4 and Table 3.5, which indicate the clay soils to vary between very soft and very stiff. Strength test data is generally consistent with the field descriptions of the aforementioned soils.

TABLE 3.4 SUMMARY OF HAND SHEAR VANE TESTS

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP102	0.55	63	148
TP102	0.80	85	200
TP102	1.00	126	296
TP102	1.40	89	209
TP102	1.70	113	266
TP104	0.60	65	153
TP104	1.00	77	181
TP104	1.50	100	235
TP106	1.00	65	153
TP106	1.40	95	223
TP106	1.80	114	268
TP108	1.25	55	129
TP108	1.60	75	176
TP108	1.80	81	190
TP109	0.60	81	190
TP109	1.10	90	212
TP109	1.40	99	233
TP109	1.60	91	214
TP110	1.90	81	190

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP110	2.10	93	219
TP111	0.50	75	176
TP111	0.90	92	216
TP111	1.50	89	209
TP111	1.80	96	226
TP113	0.50	52	122
TP113	1.20	65	153
TP113	1.80	63	148
TP113	2.00	66	155
TP115	1.50	53	125
TP115	1.70	59	139
TP117	1.20	85	200
TP117	1.50	92	216
TP117	1.70	92	216
TP118	1.00	69	162
TP118	1.60	84	197
TP119	0.50	70	165
TP119	0.80	90	212
TP119	1.40	92	216
TP119	1.90	92	216
TP120	1.10	56	132
TP120	1.40	59	139
TP121	0.50	61	143
TP121	1.00	86	202
TP121	1.40	96	226
TP121	1.80	112	263
TP122	1.00	77	181
TP122	1.50	96	226
TP122	1.80	113	266
TP122	2.00	109	256
TP123	1.00	85	200
TP123	1.40	107	251
TP123	1.80	100	235
TP124	1.40	90	212
TP124	1.80	113	266

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP125	1.00	75	176
TP127	0.50	66	155
TP127	1.00	83	195
TP127	1.50	88	207
TP127	1.80	95	223
TP128	0.50	79	186
TP128	0.90	92	216
TP128	1.40	85	200
TP128	1.80	94	221
TP129	0.60	79	186
TP129	1.30	85	200
TP129	1.50	92	216
TP130	0.50	107	251
TP131	0.40	116	273
TP131	0.90	118	277
TP131	1.20	113	266
TP132	0.60	83	195
TP132	1.00	101	237
TP132	1.40	126	296
TP132	1.90	140	329
TP133	0.70	83	195
TP133	1.30	106	249
TP133	1.70	118	277
TP133	2.00	126	296
TP134	0.50	83	195
YP134	1.10	114	268
TP134	1.40	116	273
TP134	1.80	120	282
TP135	0.40	57	134
TP135	0.90	64	150
TP135	1.40	70	165
TP135	2.00	60	141
TP136	0.60	94	221
TP136	1.20	101	237
TP136	1.40	99	233

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP136	1.70	97	228
TP137	0.40	96	226
TP137	0.90	100	235
TP137	1.30	103	242
TP137	1.60	107	251
TP138	0.50	96	226
TP138	1.00	112	263
TP138	1.50	144	338
TP139	0.80	79	186
TP139	1.20	85	200
TP139	1.70	86	202
TP142	1.40	73	172
TP142	1.80	100	235
TP144	1.40	69	162
TP144	1.90	110	259
TP145	1.40	110	259
TP146	1.70	81	190
TP147	1.20	62	146
TP147	1.70	83	195
TP147	2.00	83	195
TP147	2.30	94	221
TP148	0.60	83	195
TP148	1.40	16	38
TP148	1.80	15	35
TP201	1.00	92	216
TP201	1.50	94	221
TP202	1.00	111	261
TP202	1.50	102	240
TP207	1.50	100	235
TP207	1.80	135	317
TP210	1.00	55	129
TP210	1.50	89	209
TP212	0.50	127	298
TP212	1.00	122	287
TP213	1.00	103	242



LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP213	1.50	130	306
TP214	1.00	148	348
TP214	1.50	160	376
TP216	1.00	93	219
TP216	1.50	95	223
TP216	2.00	150	353
TP217	0.50	130	306
TP217	1.00	89	209
TP217	1.50	135	317
TP219	0.50	106	249
TP219	1.00	127	298

Notes
ABP Calculated using Stroud and Butler et al 1974.

Results of the standard penetration tests, including undrained shear strengths derived from SPTs are included in Table 3.6.

TABLE 3.5 SUMMARY OF UNDRAINED SHEAR STRENGTH TEST RESULTS

LOCATION	SAMPLE DEPTH (m)	LAB DESCRIPTION	UNDRAINED SHEAR STRENGTH (kN/m^2)	CONSISTENCY
WS113	1.50–2.00	Stiff brown slightly gravelly slightly sandy CLAY.	94	Stiff
WS119	1.50–2.00	Firm brown slightly gravelly sandy CLAY.	62	Firm
WS122	2.50–3.00	Firm brown slightly sandy CLAY.	56	Firm
WS205	2.50-3.00	Firm brown slightly gravelly very sandy CLAY.	61	Firm
WS216	2.50-3.00	Stiff brown gravelly very sandy CLAY.	140	Stiff
WS221	0.50-1.00	Firm brown slightly sandy CLAY.	44	Firm

3.9. SIDE STABILITY AND EASE OF EXCAVATION

The sides of the exploratory trial pit excavations varied in stability across the site.

The presence of running sand and loose granular deposits meant that in certain areas trial pits were noted to be unstable. Furthermore, stiff CLAY across the site resulted in the excavation of trial pits to be slow.

TABLE 3.6 STANDARD/CONE PENETRATION TEST RESULTS

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS101	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS101	2	CLAY	9	8.22	N/A	Medium strength	Stiff	41.11	84.52
WS101	3	CLAY	11	9.57	N/A	Medium strength	Stiff	47.83	98.34
WS101	4	CLAY	9	7.60	N/A	Low strength	Firm	38.02	78.17
WS101	5	CLAY	12	9.96	N/A	Medium strength	Stiff	49.78	102.34
WS102	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS102	2	SAND	11	10.05	Medium Dense	N/A	N/A	N/A	100.49
WS102	3	SAND	15	13.04	Medium Dense	N/A	N/A	N/A	130.45
WS102	4	SAND	16	13.52	Medium Dense	N/A	N/A	N/A	135.18
WS102	5	SAND	14	11.61	Medium Dense	N/A	N/A	N/A	116.15
WS103	1	SAND	12	12.10	Medium Dense	N/A	N/A	N/A	120.98
WS103	2	SAND	9	8.22	Loose	N/A	N/A	N/A	82.22
WS103	3	SAND	10	8.70	Loose	N/A	N/A	N/A	86.97
WS103	4	SAND	13	10.98	Medium Dense	N/A	N/A	N/A	109.83
WS103	5	SAND	19	15.76	Medium Dense	N/A	N/A	N/A	157.63
WS104	1	SAND	11	11.09	Medium Dense	N/A	N/A	N/A	110.90
WS104	2	SAND	12	10.96	Medium Dense	N/A	N/A	N/A	109.62
WS104	3	SAND	11	9.57	Loose	N/A	N/A	N/A	95.66



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS104	4	SAND	22	18.59	Medium Dense	N/A	N/A	N/A	185.87
WS104	5	SAND	20	16.59	Medium Dense	N/A	N/A	N/A	165.92
WS105	1	SAND	7	7.06	Loose	N/A	N/A	N/A	70.57
WS105	2	SAND	10	9.14	Loose	N/A	N/A	N/A	91.35
WS105	3	SAND	19	16.52	Medium Dense	N/A	N/A	N/A	165.23
WS105	4	SAND	23	19.43	Medium Dense	N/A	N/A	N/A	194.32
WS105	5	SAND	27	22.40	Medium Dense	N/A	N/A	N/A	224.00
WS106	1	SAND	8	8.07	Loose	N/A	N/A	N/A	80.65
WS106	2	SAND	8	7.31	Loose	N/A	N/A	N/A	73.08
WS106	3	SAND	12	10.44	Medium Dense	N/A	N/A	N/A	104.36
WS106	4	SAND	15	12.67	Medium Dense	N/A	N/A	N/A	126.73
WS106	5	SAND	22	18.25	Medium Dense	N/A	N/A	N/A	182.52
WS107	1	CLAY	6	6.05	N/A	Low strength	Firm	30.24	62.18
WS107	2	CLAY	17	15.53	N/A	High strength	Very Stiff	77.65	159.65
WS107	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS108	1	CLAY	10	10.08	N/A	Medium strength	Stiff	50.41	103.64
WS108	2	SAND	12	10.96	Medium Dense	N/A	N/A	N/A	109.62
WS108	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.83



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS109	1	SAND	15	15.12	Medium Dense	N/A	N/A	N/A	151.22
WS109	2	SAND	26	23.75	Medium Dense	N/A	N/A	N/A	237.52
WS109	2.6	SAND	50	44.20	Dense	N/A	N/A	N/A	442.01
WS110	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS110	2	SAND	11	10.05	Medium Dense	N/A	N/A	N/A	100.49
WS110	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.83
WS111	1	SAND	13	13.11	Medium Dense	N/A	N/A	N/A	131.06
WS111	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.77
WS112	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS112	2	CLAY	19	17.36	N/A	High strength	Very Stiff	86.79	178.43
WS112	2.7	SAND.	50	44.01	Dense	N/A	N/A	N/A	440.05
WS113	1	CLAY	6	6.05	N/A	Low strength	Firm	30.24	62.18
WS113	2	CLAY	15	13.70	N/A	Medium strength	Stiff	68.52	140.87
WS113	2.6	CLAY	50	44.20	N/A	Very high strength	Very Stiff	220.03	454.38
WS114	1	CLAY	10	10.08	N/A	Medium strength	Stiff	50.41	103.64
WS114	2	CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169.04
WS114	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.83
WS115	1	SAND	8	8.07	Loose	N/A	N/A	N/A	80.65



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS115	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.77
WS116	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS116	2	CLAY	10	9.14	N/A	Medium strength	Stiff	45.68	93.91
WS116	3	CLAY	9	7.83	N/A	Low strength	Firm	39.13	80.46
WS116	4	CLAY	48	40.55	N/A	Very high strength	Very Stiff	202.76	416.88
WS116	4.8	CLAY	50	41.61	N/A	Very high strength	Very Stiff	208.03	427.72
WS117	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS117	2	CLAY	9	8.22	N/A	Medium strength	Stiff	41.11	84.52
WS117	3	CLAY	16	13.91	N/A	Medium strength	Stiff	69.57	143.04
WS117	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS118	1	CLAY	13	13.11	N/A	Medium strength	Stiff	65.53	134.73
WS118	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS118	3	CLAY	14	12.18	N/A	Medium strength	Stiff	60.88	125.16
WS118	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS119	1	CLAY	15	15.12	N/A	High strength	Very Stiff	75.61	155.46
WS119	2	CLAY	23	21.01	N/A	High strength	Very Stiff	105.06	216.00
WS119	3	CLAY	27	23.48	N/A	High strength	Very Stiff	117.40	241.38
WS119	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS120	1	SAND	8	8.07	Loose	N/A	N/A	N/A	80.65
WS120	2	SAND	19	17.36	Medium Dense	N/A	N/A	N/A	173.57
WS120	3	SAND	16	13.91	Medium Dense	N/A	N/A	N/A	139.14
WS120	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS121	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS121	2	SAND	5	4.57	Loose	N/A	N/A	N/A	45.68
WS121	3	SAND	16	13.91	Medium Dense	N/A	N/A	N/A	139.14
WS121	4	SAND	7	5.91	Loose	N/A	N/A	N/A	59.14
WS121	5	SAND	17	14.10	Medium Dense	N/A	N/A	N/A	141.04
WS122	1	SAND.	6	6.05	Loose	N/A	N/A	N/A	60.49
WS122	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS122	3	CLAY	13	11.31	N/A	Medium strength	Stiff	56.53	116.22
WS122	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS123	1	CLAY	4	4.03	N/A	Low strength	Firm	20.16	41.46
WS123	2	CLAY	5	4.57	N/A	Low strength	Firm	22.84	46.96
WS123	3	CLAY.	33	28.70	N/A	High strength	Very Stiff	143.49	295.02
WS123	3.8	CLAY.	50	42.44	N/A	Very high strength	Very Stiff	212.21	436.31
WS201	1	SAND	11	11.09	Medium Dense	N/A	N/A	N/A	110.90



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS201	2	SAND	10	9.14	Loose	N/A	N/A	N/A	91.35
WS201	3	SAND	11	9.57	Loose	N/A	N/A	N/A	95.66
WS201	4	SAND	13	10.98	Medium Dense	N/A	N/A	N/A	109.83
WS201	5	SAND	19	15.76	Medium Dense	N/A	N/A	N/A	157.63
WS202	1	CLAY	13	13.11	N/A	Medium strength	Stiff	65.53	134.73
WS202	2	CLAY	29	26.49	N/A	High strength	Very Stiff	132.46	272.34
WS202	3	SAND	17	14.78	Medium Dense	N/A	N/A	N/A	147.84
WS202	4	SAND	35	29.57	Medium Dense	N/A	N/A	N/A	109.83
WS202	5	SAND	50	41.48	Dense	N/A	N/A	N/A	157.63
WS203	1	CLAY	15	15.12	N/A	High strength	Very Stiff	75.61	155.46
WS203	2	SAND	17	15.53	Medium Dense	N/A	N/A	N/A	155.30
WS203	2.7	SAND	50	44.01	Dense	N/A	N/A	N/A	440.05
WS204	1	CLAY	13	13.11	N/A	Medium strength	Stiff	65.53	134.73
WS204	2	CLAY	13	11.88	N/A	Medium strength	Stiff	59.38	122.09
WS204	3	CLAY	14	12.18	N/A	Medium strength	Stiff	60.88	125.16
WS204	4	SAND	15	12.67	Medium Dense	N/A	N/A	N/A	126.73
WS204	5	SAND	18	14.93	Medium Dense	N/A	N/A	N/A	149.33
WS205	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS205	2	SAND	9	8.22	Loose	N/A	N/A	N/A	82.22
WS205	3	SAND	10	8.70	Loose	N/A	N/A	N/A	86.97
WS205	4	SAND	8	6.76	Loose	N/A	N/A	N/A	67.59
WS205	5	SAND	11	9.13	Loose	N/A	N/A	N/A	91.26
WS206	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS206	2	SAND	8	7.31	Loose	N/A	N/A	N/A	73.08
WS206	3	CLAY.	6	5.22	N/A	Low strength	Firm	26.09	53.64
WS207	1	CLAY	9	9.07	N/A	Medium strength	Stiff	45.37	93.27
WS207	2	SAND	12	10.96	Medium Dense	N/A	N/A	N/A	109.62
WS207	3	SAND	16	13.91	Medium Dense	N/A	N/A	N/A	139.14
WS207	4	CLAY	14	11.83	N/A	Medium strength	Stiff	59.14	121.59
WS207	5	CLAY	13	10.79	N/A	Medium strength	Stiff	53.93	110.87
WS208	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS208	2	CLAY	20	18.27	N/A	High strength	Very Stiff	91.35	187.82
WS208	3	CLAY	19	16.52	N/A	High strength	Very Stiff	82.62	169.86
WS208	4	CLAY	24	20.28	N/A	High strength	Very Stiff	101.38	208.44
WS208	5	CLAY	28	23.23	N/A	High strength	Very Stiff	116.15	238.80
WS209	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS209	2	CLAY	13	11.88	N/A	Medium strength	Stiff	59.38	122.09
WS209	3	CLAY	17	14.78	N/A	Medium strength	Stiff	73.92	151.98
WS209	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS210	1	SAND	14	14.11	Medium Dense	N/A	N/A	N/A	141.14
WS210	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.77
WS211	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS211	2	CLAY	15	13.70	N/A	Medium strength	Stiff	68.52	140.87
WS211	3	SAND	13	11.31	Medium Dense	N/A	N/A	N/A	113.05
WS211	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS212	1	CLAY	10	10.08	N/A	Medium strength	Stiff	50.41	103.64
WS212	2	SAND	28	25.58	Medium Dense	N/A	N/A	N/A	255.79
WS212	2.7	SAND	50	44.01	Dense	N/A	N/A	N/A	440.05
WS213	1	SAND	13	13.11	Medium Dense	N/A	N/A	N/A	131.06
WS213	1.5	CLAY	50	47.51	N/A	Very high strength	Very Stiff	237.54	488.38
WS214	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS214	1.8	CLAY	50	46.32	N/A	Very high strength	Very Stiff	231.62	476.20
WS215	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS215	2	CLAY	14	12.79	N/A	Medium strength	Stiff	63.95	131.48



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS215	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS216	1	CLAY	14	14.11	N/A	Medium strength	Stiff	70.57	145.09
WS216	2	CLAY	47	42.94	N/A	Very high strength	Very Stiff	214.68	441.39
WS216	2.8	CLAY	53	46.45	N/A	Very high strength	Very Stiff	232.25	477.51
WS217	1	CLAY	10	10.08	N/A	Medium strength	Stiff	50.41	103.64
WS217	2	CLAY	17	15.53	N/A	High strength	Very Stiff	77.65	159.65
WS217	2.9	SAND	50	43.65	Dense	N/A	N/A	N/A	436.47
WS218	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS218	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.77
WS219	1	CLAY	5	5.04	N/A	Low strength	Firm	25.20	51.82
WS219	2	CLAY	14	12.79	N/A	Medium strength	Stiff	63.95	131.48
WS219	2.8	SAND	50	43.82	Dense	N/A	N/A	N/A	438.21
WS220	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS220	2	CLAY	19	17.36	N/A	High strength	Very Stiff	86.79	178.43
WS220	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.83
WS221	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00
WS221	2	CLAY	10	9.14	N/A	Medium strength	Stiff	45.68	93.91
WS221	3	CLAY	22	19.13	N/A	High strength	Very Stiff	95.66	196.68



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS221	3.7	CLAY	50	42.55	N/A	Very high strength	Very Stiff	212.75	437.42
WS222	1	SAND	14	14.11	Medium Dense	N/A	N/A	N/A	141.14
WS222	2	SAND	18	16.44	Medium Dense	N/A	N/A	N/A	164.44
WS222	3	SAND	18	15.65	Medium Dense	N/A	N/A	N/A	156.54
WS222	4	SAND	50	42.24	Dense	N/A	N/A	N/A	422.43
WS223	1	SAND	13	13.11	Medium Dense	N/A	N/A	N/A	131.06
WS223	2	CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169.04
WS223	3	SAND	22	19.13	Medium Dense	N/A	N/A	N/A	191.32
WS223	4	SAND	25	21.12	Medium Dense	N/A	N/A	N/A	211.21
WS223	5	SAND	50	41.48	Dense	N/A	N/A	N/A	414.81
WS224	1	SAND	9	9.07	Loose	N/A	N/A	N/A	90.73
WS224	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS224	3	SAND	10	8.70	Loose	N/A	N/A	N/A	86.97
WS224	4	SAND	11	9.29	Loose	N/A	N/A	N/A	92.93
WS224	5	SAND	13	10.79	Medium Dense	N/A	N/A	N/A	107.85
WS225	1	SAND	10	10.08	Medium Dense	N/A	N/A	N/A	100.81
WS225	2	SAND	12	10.96	Medium Dense	N/A	N/A	N/A	109.62
WS225	3	SAND	8	6.96	Loose	N/A	N/A	N/A	69.57



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS225	4	CLAY	13	10.98	N/A	Medium strength	Stiff	54.92	112.91
WS225	4.7	SAND	50	41.67	Dense	N/A	N/A	N/A	416.74
CP101	1	SAND	8	8.07	Loose	N/A	N/A	N/A	80.65
CP101	2	SAND	9	8.22	Loose	N/A	N/A	N/A	82.22
CP101	3	CLAY	21	18.26	N/A	High strength	Very Stiff	91.31	187.74
CP101	4	CLAY	21	17.74	N/A	High strength	Very Stiff	88.71	182.39
CP101	5	SAND	50	41.48	Dense	N/A	N/A	N/A	414.81
CP101	6	SAND	50	40.99	Dense	N/A	N/A	N/A	409.94
CP102	1	SAND	7	7.06	Loose	N/A	N/A	N/A	70.57
CP102	2	SAND	9	8.22	Loose	N/A	N/A	N/A	82.22
CP102	3	SAND	10	8.70	Loose	N/A	N/A	N/A	86.97
CP102	4	CLAY	18	15.21	N/A	High strength	Very Stiff	76.04	156.33
CP102	5	CLAY	45	37.33	N/A	Very high strength	Very Stiff	186.66	383.78
CP102	6	SAND	50	40.99	Dense	N/A	N/A	N/A	409.94
CP102	7	SAND	50	40.68	Dense	N/A	N/A	N/A	406.78
CP103	1	SAND	14	14.11	Medium Dense	N/A	N/A	N/A	141.14
CP103	2	SAND	13	11.88	Medium Dense	N/A	N/A	N/A	118.76
CP103	3	CLAY	15	13.04	N/A	Medium strength	Stiff	65.22	134.10



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP103	4	CLAY	21	17.74	N/A	High strength	Very Stiff	88.71	182.39
CP103	5	SAND	50	41.48	Dense	N/A	N/A	N/A	414.81
CP103	6	GRAVEL	50	40.99	Dense	N/A	N/A	N/A	409.94
CP103	7	GRAVEL	30	24.41	Medium Dense	N/A	N/A	N/A	406.78
RB101	1	CLAY	30	30.24	N/A	Very high strength	Very Stiff	151.22	310.91
RB101	2	CLAY	15	13.70	N/A	Medium strength	Stiff	68.52	140.87
RB101	3	CLAY	15	13.04	N/A	Medium strength	Stiff	65.22	134.10
RB101	4	GRAVEL	50	42.24	Dense	N/A	N/A	N/A	422.43
RB101	5	GRAVEL	50	41.48	Dense	N/A	N/A	N/A	414.81
RB101	6	GRAVEL	50	40.99	Dense	N/A	N/A	N/A	409.94
RB101	7	GRAVEL	40	32.54	Dense	N/A	N/A	N/A	325.43
RB103	1	CLAY	17	17.14	N/A	High strength	Very Stiff	85.69	176.18
RB103	2	CLAY	29	26.49	N/A	High strength	Very Stiff	132.46	272.34
RB103	3	CLAY	35	30.44	N/A	Very high strength	Very Stiff	152.19	312.90
RB103	4	CLAY	44	37.17	N/A	Very high strength	Very Stiff	185.87	382.14
RB103	5	GRAVEL	50	41.48	Dense	N/A	N/A	N/A	414.81
RB103	6	GRAVEL	50	40.99	Dense	N/A	N/A	N/A	409.94
RB104	1	SAND	22	22.18	Medium Dense	N/A	N/A	N/A	221.79



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
RB104	2	SAND	18	16.44	Medium Dense	N/A	N/A	N/A	164.44
RB104	3	SAND	33	28.70	Medium Dense	N/A	N/A	N/A	286.99
RB104	4	GRAVEL	50	42.24	Dense	N/A	N/A	N/A	422.43
RB104	5	GRAVEL	50	41.48	Dense	N/A	N/A	N/A	414.81
RB105	1	CLAY	20	20.16	N/A	High strength	Very Stiff	100.81	207.28
RB105	2	CLAY	25	22.84	N/A	High strength	Very Stiff	114.19	234.78
RB105	3	CLAY	31	26.96	N/A	High strength	Very Stiff	134.80	277.14
RB105	4	GRAVEL	50	42.24	Dense	N/A	N/A	N/A	422.43
RB105	5	GRAVEL	50	41.48	Dense	N/A	N/A	N/A	414.81

NOTES

* The Allowable Bearing Pressure (ABP) should be considered indicative.
The interpretation of in situ mass undrained shear strength (cu) data from SPT Blow Count (N) results and the influence of the Plasticity Index (PI) was reported in Standard Penetration Test in Insensitive Clays and Soft Rocks. Stroud (1974). The standard penetration test and the engineering properties of glacial materials subsequently. Stroud and Butler (1975) and (1989).
Allowable bearing pressure on sands. Soil Mechanics in Engineering Practice Terzaghi, K. & Peck, R.B. 1996.



3.10. CONSOLIDATION

Two undisturbed samples of Glacial Till were submitted for oedometer analysis. The results are provided in Table 3.7.

TABLE 3.7 OEDOMETER CONSOLIDATION RESULTS

LOCATION	DEPTH (m)	SAMPLE TYPE	MOISTURE CONTENT (%)	OEDOMETER CONSOLIDATION		
				PRESSURE RANGE (kPa)	Mv (m^2/MN)	Cv (m^2/year)
WS208	0.50-1.00	U100	28	0–15	0.259	42.459
				15–30	0.173	11.225
				30–60	0.271	9.591
				60–120	0.301	2.045
				120–15	0.166	1.209
WS115	1.50-2.00	U100	33	0–35	0.496	15.538
				35–70	0.394	2.554
				70–140	0.314	1.104
				140–280	0.186	0.787
				280–35	0.084	0.905

When considered at over-burden pressure with an additional load of 120-280 kPa the coefficient of volume compressibility (Mv) ranged from 0.084 m^2/MN up to 0.496 m^2/MN. The material is considered to be low to high compressibility.

The rate at which settlement is likely to occur is determined by the coefficient of consolidation (Cv). As shown in Table 3.7, the coefficient ranges from 0.787 m^2/yr to 42.459 m^2/yr. The rate at which settlement will occur is increased by the presence of sand within the Glacial Till and it is likely that settlement will occur over a period of months to years.

3.11. PARTICLE SIZE DISTRIBUTION

Particle Size Distribution Tests have been undertaken on selected samples of granular material via wet sieve to obtain information on the soil fractions. The results are included in Table 3.8. The full results can be found in Appendix VIII.

TABLE 3.8 SUMMARY OF PARTICLE SIZE DISTRIBUTION TEST RESULTS

LOCATION	DEPTH (m)	SOIL FRACTION (%)			
		COBBLES	GRAVEL	SAND	SILT/CLAY
TP107	1.00 (Natural - SAND)	0	3	90	7
TP112	1.20 (Natural - SAND)	0	2	95	3
TP116	1.20 (Natural - SAND)	0	5	85	10
TP122	0.40 (Natural - SAND)	0	13	74	13
TP140	2.00 (Natural - SAND)	14	9	66	11

LOCATION	DEPTH (m)	SOIL FRACTION (%)			
		COBBLES	GRAVEL	SAND	SILT/CLAY
TP142	0.70 (Natural - SAND)	0	1	92	7
TP147	0.50 (Natural - SAND)	0	1	90	9
TP205	0.70 (Natural - SAND)	0	2	91	7
TP215	0.80 (Natural - SAND)	0	6	90	4

3.12. SOIL INFILTRATION

In-situ BRE 365 Soakaway tests were undertaken over a 48 hour period within trial pits completed as SA101-SA112.

The results are presented in Table 3.9 below and the test certificates are included within Appendix IX.

TABLE 3.9 BRE365 SOAKAWAY TESTING RESULTS

LOCATION	DEPTH (m)	MATERIAL	TEST NO.	SOIL INFILTRATION RATE (m/s)
SA101	2.00	CLAY / SAND	Test No.1	N/A
SA102	1.40	SAND	Test No.1	1.54E-05
			Test No.2	4.51E-06
			Test No.3	1.34E-05
SA103	1.80	SAND	Test No.1	N/A
SA104	1.60	SAND	Test No.1	N/A
SA105	2.00	CLAY / SAND	Test No.1	N/A
SA106	1.30	SAND	Test No.1	N/A
SA107	1.50	CLAY	Test No.1	N/A
SA108	1.50	CLAY	Test No.1	N/A
SA109	1.70	CLAY	Test No.1	N/A
SA110	1.80	CLAY	Test No.1	N/A
SA111	1.40	SAND	Test No.1	N/A
SA112	1.70	SAND / CLAY	Test No.1	N/A

Soil infiltration was taken over the wetted area from between 75% and 25% of the effective depth. An infiltration rate was only able to be calculated within SA102 where the test was completed within SAND drift deposits; the infiltration rate was noted to be good to moderate within this location. In the remaining locations, and especially where CLAY drift deposits were present, the soakage potential was significantly reduced.

It is considered there is a limited potential that soakaway drainage may be suitable for the proposed development. However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – *Soakaway Design*.

3.13. SOIL PLASTICITY

The Atterberg limits determinations, summarised in Table 3.10, show the clay to be of predominantly low to moderate plasticity with discrete areas of high plasticity clay.

TABLE 3.10 SUMMARY OF PLASTICITY INDEX TEST RESULTS

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425 µm SIEVE (%)	MODIFIED PLASTICITY INDEX	NHBC VOLUME CHANGE POTENTIAL
TP104	1.50	15	19	42	23	97	22.31	Medium
TP118	0.80	17	14	33	19	98	18.62	Low
TP130	1.00	14	13	28	15	95	14.25	Low
TP138	0.60	31	27	62	35	100	35.00	Medium
TP144	1.30	15	15	31	16	97	15.52	Low
TP148	1.60	352	217	455	238	100	238	High
WS205	3.00-3.45	15	15	33	18	89	16.02	Low
WS113	1.00-1.45	17	14	29	15	98	14.70	Low
WS117	1.00-1.45	26	23	50	27	96	25.92	Medium
WS119	1.00-1.45	23	24	53	29	97	28.13	Medium
WS121	3.00-3.45	22	23	48	25	100	25.00	Medium
WS122	2.00-2.45	23	24	52	28	100	28.00	Medium
WS123	2.00-2.45	29	19	38	19	95	18.05	Low
WS204	2.00-2.45	24	20	41	21	96	20.16	Medium
WS208	2.00-2.45	11	15	32	17	94	15.98	Low
WS101	1.00-1.45	8.5	14	31	17	95	16.15	Low
WS213	1.00-1.45	10	16	34	18	93	16.74	Low

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425 µm SIEVE (%)	MODIFIED PLASTICITY INDEX	NHBC VOLUME CHANGE POTENTIAL
WS224	2.00-2.45	25	24	53	29	95	27.55	Medium
WS211	1.00-1.45	18	16	34	18	98	17.64	Low

The results of the Atterberg limits testing confirmed that the soils would generally be deemed to be "Low to Medium Volume Change Potential" in accordance with the classification system utilised by the LABC/NHBC industry guidance. One location, TP148, was noted to be of high volume change potential.

3.14. pH AND SULPHATE

Chemical analyses for pH and soluble sulphate content contained in Appendix VI (summarised in Table 3.11), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE *Special Digest 1* (2005).

Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in WS225 at 0.60 m bgl.

TABLE 3.11 SUMMARY OF pH AND SULPHATE DATA

LOCATION	DEPTH (m)	SO_4 IN 2:1 WATER/SOIL (g/l)	pH VALUE	CLASSIFICATION
TP106	0.40	0.02	8.0	DS-1, AC-1s
TP109	1.20	0.012	8.2	DS-1, AC-1s
TP115	0.20	0.013	5.7	DS-1, AC-1s
TP116	1.70	0.011	7.1	DS-1, AC-1s
TP117	0.1	0.019	5.8	DS-1, AC-1s
TP124	0.20	0.0094	6.3	DS-1, AC-1s
TP125	1.30	0.0086	7.9	DS-1, AC-1s
TP131	0.10	0.011	7.0	DS-1, AC-1s
TP136	0.80	0.031	7.7	DS-1, AC-1s
TP139	0.10	0.0095	6.3	DS-1, AC-1s
TP140	1.60	0.015	8.8	DS-1, AC-1s
TP142	0.10	0.0074	5.5	DS-1, AC-1s
TP143	1.80	0.0045	8.2	DS-1, AC-1s
TP145	1.50	0.013	8.3	DS-1, AC-1s
TP206	1.00	0.0025	8.1	DS-1, AC-1s
TP207	0.80	0.0057	7.3	DS-1, AC-1s
TP208	0.90	0.0062	7.9	DS-1, AC-1s
TP210	0.20	0.018	6.8	DS-1, AC-1s



LOCATION	DEPTH (m)	SO_4 IN 2:1 WATER/SOIL (g/l)	pH VALUE	CLASSIFICATION
TP211	0.50	0.012	8.0	DS-1, AC-1s
TP218	0.20	0.022	6.4	DS-1, AC-1s
WS101	1.40	0.052	8.0	DS-1, AC-1s
WS102	0.1	0.0088	6.3	DS-1, AC-1s
WS104	0.20	0.013	6.7	DS-1, AC-1s
WS105	0.40	0.003	6.9	DS-1, AC-1s
WS106	0.20	0.0045	7.3	DS-1, AC-1s
WS109	0.10	0.066	6.2	DS-1, AC-1s
WS116	1.20	0.058	8.2	DS-1, AC-1s
WS201	0.30	0.0069	7.6	DS-1, AC-1s
WS201	0.80	0.0028	7.0	DS-1, AC-1s
WS203	0.80	0.0014	8.2	DS-1, AC-1s
WS208	0.20	0.0039	6.5	DS-1, AC-1s
WS210	0.60	0.0074	7.1	DS-1, AC-1s
WS211	1.10	0.023	8.2	DS-1, AC-1s
WS217	1.00	0.027	8.1	DS-1, AC-1s
WS222	0.80	0.0031	8.0	DS-1, AC-1s
WS223	0.20	0.0068	8.2	DS-1, AC-1s
WS224	1.60	0.015	7.5	DS-1, AC-1s
WS225	0.60	0.54	7.0	DS-2, AC-1s

4. TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

E3P has undertaken a Tier 1 qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

4.1. HUMAN HEALTH RISK ASSESSMENT

At Tier 1 stage, the long term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published in LQM/CIEH S4UL (S4UL3267).

The results of this comparison have been summarised within Table 4.1.

TABLE 4.1 SUMMARY OF INORGANIC AND HYDROCARBON TOXICITY ASSESSMENT FOR A RESIDENTIAL END USE

DETERMINANT	UNIT	GAC	N	MC	LOC. OF EX	PATH-WAY	ASSESSMENT
Arsenic	mg/kg	37	58	21	N/A	1	No Further Action
Cadmium	mg/kg	11	58	0.9	N/A	1	No Further Action
Chromium (VI)	mg/kg	6.0	58	< 4.0	N/A	1	No Further Action
Lead	mg/kg	200	58	140	N/A	1	No Further Action
Mercury	mg/kg	1.2	58	0.60	N/A	4	No Further Action
Nickel	mg/kg	130	58	57	N/A	1	No Further Action
Selenium	mg/kg	250	58	2.50	N/A	1	No Further Action
Copper	mg/kg	2400	82	82	N/A	1	No Further Action
Zinc	mg/kg	3700	58	430	N/A	1	No Further Action
Cyanide – Total	mg/kg	791	58	< 1.0	N/A	1	No Further Action
Phenols – Total	mg/kg	120	38	1.0	N/A	1	No Further Action
Asbestos	Fibres	NFD	29	NFD	N/A	3	No Further Action
Naphthalene	mg/kg	2.3	58	1.3	N/A	4	No Further Action
Acenaphthylene	mg/kg	170	58	<0.05	N/A	2	No Further Action
Acenaphthene	mg/kg	210	58	0.25	N/A	1	No Further Action
Fluorene	mg/kg	170	58	<0.05	N/A	1	No Further Action
Phenanthrene	mg/kg	95	58	1.4	N/A	2	No Further Action
Anthracene	mg/kg	2400	58	0.25	N/A	2	No Further Action
Fluoranthene	mg/kg	280	58	1.4	N/A	2	No Further Action
Pyrene	mg/kg	620	58	1.5	N/A	2	No Further Action
Benzo(a)Anthracene	mg/kg	7.2	58	0.82	N/A	2	No Further Action
Chrysene	mg/kg	15	58	0.65	N/A	2	No Further Action
Benzo(b)Fluoranthene	mg/kg	2.6	58	0.5	N/A	2	No Further Action
Benzo(k)Fluoranthene	mg/kg	77	58	0.29	N/A	2	No Further Action
Benzo(a)Pyrene	mg/kg	2.2	58	0.51	N/A	2	No Further Action
Indeno(123-cd)Pyrene	mg/kg	27	58	<0.05	N/A	2	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	0.24	58	<0.05	N/A	2	No Further Action
Benzo(ghi)Perylene	mg/kg	320	58	<0.05	N/A	2	No Further Action
TPH C5-C6 (aliphatic)*	mg/kg	42	58	< 1.0	N/A	4	No Further Action
TPH C6-C8 (aliphatic)*	mg/kg	100	58	< 0.1	N/A	4	No Further Action
TPH C8-C10 (aliphatic)*	mg/kg	27	58	< 0.1	N/A	4	No Further Action
TPH C10-C12 (aromatic)*	mg/kg	74	58	<2.0	N/A	4	No Further Action
TPH C12-C16 (aromatic)*	mg/kg	140	58	<4.0	N/A	4	No Further Action
TPH C16-C21 (aromatic)*	mg/kg	260	58	6	N/A	1	No Further Action
TPH C21-C35 (aromatic)*	mg/kg	1100	58	180	N/A	1	No Further Action

Notes
PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plants

Abbreviations: GAC = general assessment criteria, n = number of samples, MC = maximum concentration; Loc of Ex = location of exceedance; NFD = no fibres detected.

* The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons Criteria Working Group (CWG) for both aliphatic and aromatic compounds. E3P has utilised the Tier 1 values for aliphatic compounds for the volatile and semi volatile fractions (C5-C12) and the Tier 1 values for aromatic compound for the non-volatile fractions (C12-C35). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.
** Atkins ATRISK
*** USEPA Risk Management Levels

Referring to Table 4.1, the results of this direct comparison indicates that the data does not exceed the screening criteria for a residential end use for any of the contaminants.

No elevated concentrations of SVOCs or VOCs were identified in the soils submitted for chemical analysis.

HUMAN HEALTH RISK ASSESSMENT AND MITIGATION

As there have been no elevated concentrations identified at any locations across site, there is little to no risk to chronic human health associated with the elevated concentrations of inorganic heavy metals, non-volatile PAH compounds or TPH compounds.

Therefore it is unlikely that the installation of a suitable cover system in all proposed private gardens, landscaping and public open space to remove any potential for direct exposure to impacted soils will be required. However, the installation of a suitable growing medium will be required. A cover system will likely be required in areas of retained Made Ground.

Chemical analysis of the natural clay and sand drift deposits, along with topsoil deposits, has identified these soils to be acceptable for use as subsoil or topsoil within the proposed garden areas; however, further chemical validation samples will be required to confirm this.

Within the north of the site in the vicinity of former buildings and the off-site dwelling asbestos cement sheeting stockpiles were identified. During the remediation and enabling works these should be removed from site by a licensed asbestos removal contractor. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 4.1.

FIGURE 4.1 ASBESTOS RISK MITIGATION CONCEPTUAL SITE MODEL



Notes
ND None Detect
0.001% Soils may contain ≤ 0.001% asbestos using composite testing to ensure there is no potential risk to human health. This value is present within areas where there may be a short term low level exposure of soils containing trace asbestos fibres by construction workers where an appropriate level of asbestos management is employed (dust suppression)
0.1% Soils at a depth of >1.00m bgl may contain <0.1% asbestos using composite testing where they will not be likely to be disturbed in the future and will therefore be in an area of low sensitivity. Risk assessment completed in accordance with Asbestos JIWG risk assessment tools.
Undefined- this will be dependent upon soils encountered during earthworks, which may be placed at these depths to ensure no potential risk to human health.

4.2. CONTROLLED WATERS RISK ASSESSMENT

E3P has undertaken a controlled waters risk assessment for the site based on the consideration of the conceptual site model and the sensitive receptors which are summarised in Table 4.2.

TABLE 4.2 CONTROLLED WATERS CONCEPTUAL MODEL AND SENSITIVITY PROFILE

DISCUSSION		SENSITIVITY RATING
Contaminant Source		
Made Ground Areas of limited Made Ground in areas of historic development on site has the potential to be a source of heavy metals or PAHs; however soil analysis has not identified any heavy metal or PAH contamination during the site investigation. No other sources have been identified.		**Low**
Pathway		
Vertical Migration Due to the majority of the site being underlain by granular deposits interbedded with cohesive clay deposits, vertical migration of contaminants is highly reduced. The presence of this low permeability drift will offer some protection to the underlying aquifer and inhibit lateral migration of any contaminants towards Spa Brook.		**Medium**
Lateral migration Lateral migration of contaminants is considered possible due to the presence of granular deposits across the site.		**Medium**
Receptor		
Aquifer Classification in Superficial Drift Deposits	Secondary A aquifer and Unproductive	**Medium**
Aquifer Classification in Bedrock	Principal aquifer	**High**
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is in source protection zone 3 (total catchment)	**High**
Distance to the Closest Groundwater Abstraction Point	Groundwater abstraction licenses are located 497m and 1202m north of the site. The closest abstraction point 497m north of the site is a potable water supply.	**Medium**
Is the Site Located Within 50 m of a Surface Watercourse?	Spa Brook is located in the centre of the site. Furthermore ponds and drainage ditches are located across the site, with a stream noted in the north of the site near to an area of former development.	**High**
The ICSM developed within the context of the site setting has identified viable pollutant pathways, which would be the downward migration of potentially mobile phase-soluble contaminants towards the underlying principal aquifer and the lateral migration towards the Spa Brook located in the centre of the site and additional ponds and drainage ditches on the site.		

To ensure a robust appraisal of the identified risk to controlled waters, E3P has identified the sources of potential contamination that represent a risk to controlled waters from the initial CSM, and subsequently assessed the ground investigation data in the form of analysis of the solid phase (soil) and dissolved phase within the perched groundwater or aquifer. The results of this assessment are presented in Table 4.3.



TABLE 4.3 QUALITATIVE RISK TO CONTROLLED WATERS FROM SOIL ANALYTICAL RESULTS

CONTAMINANT	ASSESSMENT RATING	DISCUSSION
BTEX > 1 mg/kg	The soil data analysis has not identified any detectable concentrations of VOCs above 1mg/kg or TPH C5 to C6 that might otherwise be indicative of VOC impact.	None
Total VOC > 1 mg/kg		
Total SVOC > 1 mg/kg	No SVOC sources have been identified; no elevated concentrations of SVOCs have been identified.	None
C5-C10 > 5 mg/kg	All concentrations are below the laboratory LOD.	None
C10-C12 > 10 mg/kg	All concentrations are below the laboratory LOD.	None
C12-C16 > 50 mg/kg	All concentrations are below the laboratory LOD.	None
Phenols > 2 mg/kg	All concentrations are below 2 mg/kg.	None
Naphthalene > 2 mg/kg	Concentrations of naphthalene above 2 mg/kg have been not been recorded on site.	None
Total PAH > 10 mg/kg	Total concentrations of low-solubility PAH compounds greater than 10 mg/kg have not been detected on site.	None
PCB > 1 mg/kg	No potential sources of PCB have been identified	None
Heavy metals > 500 mg/kg	Concentrations of heavy metals above 500 mg/kg have been not been detected on site.	None

The Tier I assessment has included a comparison of leachate analysis from samples of the Made Ground and groundwater samples to drinking water standards and environmental quality standards (EQS). Surface water samples have been obtained from a stream in the north of the site adjacent to former development and off-site residential dwelling.

Samples were not able to be obtained from drainage ditches or Spa Brook due to the limited amount of water present during the monitoring visits.

These are presented in Table 4.4 and Table 4.5.



TABLE 4.4 COMPARISON OF GROUNDWATER AND LEACHATE ANALYSIS WITH TIER 1 SCREENING LEVELS

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF GW SAMPLES	MAX CONC. IN GROUNDWATER	LOCATION OF EXCEEDANCE	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
Arsenic	µg/l	50	10	6	2.74	N/A	3	7.3	N/A	No Further Action
Cadmium	µg/l	0.08-0.25	5	6	0.13	N/A	3	0.20	N/A	No Further Action
Chromium (VI)	µg/l	3.4	–	6	<5.0	N/A	3	<5.0	N/A	No Further Action
Chromium (III)	µg/l	4.7	50	6	2.6	N/A	3	2.1	N/A	No Further Action
Copper	µg/l	1	2000	6	10 15 1.9	WS119 WS102 WS113	3	20 16 6	WS121 0.10 WS225 0.60 TP106 0.40	**Further Action**
Total Cyanide	µg/l	1	50	6	<1.0	N/A	3	<1.0	N/A	No Further Action
Lead	µg/l	1.2	10	6	<0.2	N/A	3	7.5 6.9 4.1	WS121 0.10 WS225 0.60 TP106 0.40	**Further Action**
Mercury	µg/l	–	1.0	6	<0.05	N/A	3	<0.50	N/A	No Further Action
Nickel	µg/l	4	20	6	9.1 10 14	WS119 WS102 WS107	3	7.5 5.3 4.4	WS121 0.10 WS225 0.60 TP106 0.40	**Further Action**
Selenium	µg/l	–	10	6	1.4	N/A	3	<4.0	N/A	No Further Action
Zinc	µg/l	10.9	–	6	8.6	N/A	3	34 27	WS225 0.60 WS121 0.10	**Further Action**
pH	6–9			6	6.7-7.3	N/A	3	7.2-7.7	N/A	No Further Action
Polycyclic Aromatic Hydrocarbons										
Naphthalene	µg/l	2	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Anthracene	µg/l	0.1	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Benzo[b]fluoranthene	µg/l	0.00017*	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF GW SAMPLES	MAX CONC. IN GROUNDWATER	LOCATION OF EXCEEDANCE	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
Benzo[k]fluoranthene	µg/l	0.00017*	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Benzo(a)pyrene	µg/l	0.00017*	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Indeno(123-cd)pyrene	µg/l	0.00017*	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Fluoranthene	µg/l	0.0063	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Benzo(ghi)perylene	µg/l	1.7–4	10*	6	<0.01	N/A	3	<0.01	N/A	No Further Action
Aromatic Hydrocarbon [5]										
TPH C5-C6 (benzene)	µg/l	10	1	6	<1.0	N/A	3	< 1.0	N/A	No Further Action
TPH C6-C8 (toluene)	µg/l	74	700	6	<1.0	N/A	3	< 1.0	N/A	
TPH C8-C10 (ethyl benzene)	µg/l	20	300	6	<1.0	N/A	3	< 1.0	N/A	
TPH C10-C12 (xylene)	µg/l	30	500	6	<10	N/A	3	< 10	N/A	
TPH C12-C16	µg/l	2	90[5]	6	<10	N/A	3	< 10	N/A	
TPH C16-C35	µg/l	50#	90[5]	6	<10	N/A	3	< 10	N/A	
Aliphatic Hydrocarbon [5]										
TPH C5-C6	µg/l	–	15000	6	<1.0	N/A	3	< 1.0	N/A	No Further Action
TPH C6-C8	µg/l	–	15000	6	<1.0	N/A	3	< 1.0	N/A	
TPH C8-C10	µg/l	–	300	6	<1.0	N/A	3	< 1.0	N/A	
TPH C10-C12	µg/l	–	300	6	<10	N/A	3	< 10	N/A	
TPH C12-C16	µg/l	–	300	6	<10	N/A	3	< 10	N/A	
TPH C16-C21	µg/l	–	300**	6	<10	N/A	3	< 10	N/A	
TPH C21-C35	µg/l	–	300**	6	<10	N/A	3	< 10	N/A	

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF GW SAMPLES	MAX CONC. IN GROUNDWATER	LOCATION OF EXCEEDANCE	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
Volatile Organic Compounds										
Tetrachloroethylene	µg/l	0.4	10	6	<1.0	N/A	-	-	-	No Further Action
Trichloroethylene	µg/l	10	10	6	<1.0	N/A	-	-	-	
Trichlorobenzene	µg/l	0.4	–	6	<1.0	N/A	-	-	-	
Trichloromethane	µg/l	2.5	–	6	<1.0	N/A	-	-	-	
Dichloromethane	µg/l	20	200	6	<1.0	N/A	-	-	-	
Carbon Tetrachloride	µg/l	12	3	6	<1.0	N/A	-	-	-	
Vinyl Chloride	µg/l	–	0.3	6	<1.0	N/A	-	-	-	

Notes

Solubility <0.01µg/l
AA – Annual Average
MAC- Maximum Admissible Concentration
* Polyaromatic hydrocarbons (PAH) - Benzo(a)pyrene (BaP), Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water
** There are no WHO Guideline Values for aliphatic fractions C16-C21 and C21-C35, therefore the guideline value for aliphatic fractions inclusive of C8-C16 (300µg/l) has been applied.

1. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
2. Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
3. Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
4. Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
5. WHO Guidelines for Drinking Water Quality. Third edition (2004)

TABLE 4.5 COMPARISON OF SURFACE ANALYSIS WITH TIER 1 SCREENING LEVELS

DETERMINAND	UNIT	EQS [1, 2, 3]	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN SURFACE WATER	LOCATION OF EXCEEDANCE	ASSESSMENT
		AA			19/04/2022		
Arsenic	µg/l	50	10	1	3.41	N/A	No Further Assessment
Cadmium	µg/l	0.08-0.25	5	1	0.05	N/A	No Further Assessment
Chromium (VI)	µg/l	3.4	–	1	<5.0	N/A	No Further Assessment
Chromium (III)	µg/l	4.7	50	1	<0.2	N/A	No Further Assessment
Copper	µg/l	1	2000	1	0.5	N/A	No Further Assessment
Total Cyanide	µg/l	1	50	1	<1.0	N/A	No Further Assessment
Lead	µg/l	1.2	10	1	<0.2	N/A	No Further Assessment
Mercury	µg/l	–	1.0	1	<0.05	N/A	No Further Assessment
Nickel	µg/l	4	20	1	3.2	N/A	No Further Assessment
Selenium	µg/l	–	10	1	0.7	N/A	No Further Assessment
Zinc	µg/l	10.9	–	1	<0.5	N/A	No Further Assessment
pH	6–9			1	7.4	N/A	No Further Assessment
Naphthalene	µg/l	2	10*	1	<0.01	N/A	No Further Assessment
Anthracene	µg/l	0.1	10*	1	<0.01	N/A	No Further Assessment
Benzo[b]fluoranthene	µg/l	0.00017*	10*	1	<0.01	N/A	No Further Assessment
Benzo[k]fluoranthene	µg/l	0.00017*	10*	1	<0.01	N/A	No Further Assessment
Benzo(a)pyrene	µg/l	0.00017*	10*	1	<0.01	N/A	No Further Assessment
Indeno(123-cd)pyrene	µg/l	0.00017*	10*	1	<0.01	N/A	No Further Assessment
Fluoranthene	µg/l	0.0063	10*	1	<0.01	N/A	No Further Assessment
Benzo(ghi)perylene	µg/l	1.7–4	10*	1	<0.01	N/A	No Further Assessment



DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN SURFACE WATER 19/04/2022	LOCATION OF EXCEEDANCE	ASSESSMENT
Aromatic Hydrocarbon							
TPH C5-C6 (benzene)	µg/l	10	1	1	<1.0	N/A	No Further Assessment
TPH C6-C8 (toluene)	µg/l	74	700	1	<1.0	N/A	
TPH C8-C10 (ethyl benzene)	µg/l	20	300	1	<1.0	N/A	
TPH C10-C12 (xylene)	µg/l	30	500	1	<1.0	N/A	
TPH C12-C16	µg/l	2	90[5]	1	<10	N/A	
TPH C16-C35	µg/l	50#	90[5]	1	<10	N/A	
Aliphatic Hydrocarbon							
TPH C5-C6	µg/l	–	15000	1	<1.0	N/A	No Further Assessment
TPH C6-C8	µg/l	–	15000	1	<1.0	N/A	
TPH C8-C10	µg/l	–	300	1	<1.0	N/A	
TPH C10-C12	µg/l	–	300	1	<10	N/A	
TPH C12-C16	µg/l	–	300	1	<10	N/A	
TPH C16 – C21	µg/l	–	300**	1	<10	N/A	
TPH C21-C35	µg/l	–	300**	1	<10	N/A	
Volatile Organic Compounds							
Tetrachloroethylene	µg/l	0.4	10	1	<1.0	N/A	No Further Assessment
Trichloroethylene	µg/l	10	10	1	<1.0	N/A	No Further Assessment
Trichlorobenzene	µg/l	0.4	–	1	<1.0	N/A	No Further Assessment
Trichloromethane	µg/l	2.5	–	1	<1.0	N/A	No Further Assessment
Dichloromethane	µg/l	20	200	1	<1.0	N/A	No Further Assessment

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN SURFACE WATER 19/04/2022	LOCATION OF EXCEEDANCE	ASSESSMENT
Carbon Tetrachloride	µg/l	12	3	1	<1.0	N/A	No Further Assessment
Vinyl Chloride	µg/l	–	0.3	1	<1.0	N/A	No Further Assessment

Notes

Solubility <0.01µg/l
AA – Annual Average
MAC- Maximum Admissible Concentration
* Polyaromatic hydrocarbons (PAH) - Benzo(a)pyrene (BaP), Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water
** There are no WHO Guideline Values for aliphatic fractions C16-C21 and C21-C35, therefore the guideline value for aliphatic fractions inclusive of C8-C16 (300µg/l) has been applied.

6. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
7. Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
8. Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
9. Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
10. WHO Guidelines for Drinking Water Quality. Third edition (2004)

4.2.1. CONTROLLED WATER RISK ASSESSMENT AND MITIGATION

This comparison indicates that the data exceeds the EQS and DWS values for the following inorganic compounds:

- Copper (Groundwater and Leachate)
- Lead (Leachate)
- Nickel (Groundwater and Leachate)
- Zinc (Leachate)

Leachate analysis identified elevated concentrations of Copper, Lead, Nickel and Zinc against EQS screening values but not DWS screening values. Where leachate analysis has been undertaken, this can overstate the risk and is not wholly representative of the site characterisation, and as such reliance should be on groundwater and surface water samples rather than the leachate analysis.

In relation to the remaining exceedances, Table 4.6 provides a summary.

TABLE 4.6 SUMMARY OF ELEVATED CONTAMINANTS IN GROUNDWATER

CONTAMINANT	WS102 (µg/l)	WS107 (µg/l)	WS113 (µg/l)	WS119 (µg/l)
	Contaminant Source			
	Natural Ground	Natural Ground	Natural Ground	Natural Ground
Copper	15	-	1.9	10
Nickel	10	14	-	9.1

4.2.2. M-BAT ASSESSMENT

Due to exceedances in ground water samples for copper and nickel, an m-BAT assessment has been completed to assess the bioavailability of the metals with respect to surface water receptors (Stream / Spa Brook). The chemical values from the groundwater analysis have been input into the assessment.

Where the Risk Characterisation Ratio (RCR) is greater than 1, this indicates the bioavailable concentration is above the EQS and the receptor is therefore at risk. In this instance, the RCR has not been exceeded for copper, nickel or zinc within groundwater or surface water samples, and as such they are not considered to be bioavailable. Manganese has been identified to exceed the RCR within the surface water sample from the stream in the north of the site and WS107. There is not considered to be risk to controlled waters from manganese.

In light of the above assessment, E3P do not consider the site to pose an unacceptable level of risk to surface waters for copper and nickel. It should also be noted the site is currently uncapped and the proposed development will largely encapsulate the site, thus limiting the potential for infiltration and therefore leaching potential.

4.2.3. DISCUSSION OF CONTROLLED WATERS RISK ASSESSMENT

Historically, the site has been subjected to minimal former development. Across the site are former field boundaries and infilled ponds, with a former sewage works in the west of the site and buildings in the north of the site.

It is considered that the primary source of potential contaminants at the subject site will be from isolate Made Ground at the site, however given the localised extent of Made Ground encountered during the site investigation it is not considered to be a significant source.

The site is underlain by a mixed geology of both low permeability cohesive deposits and high permeability granular deposits. The granular deposits will afford less protection to the underlying principal aquifer in the bedrock in comparison to areas of the site, where clay deposits have been identified. Surface water features comprising ditches / streams, Spa Brook and on-site ponds have been identified across the site.

Soil analysis did not identify any elevated concentrations of determinants that may present a risk to controlled waters. Leachate analysis identified elevated concentrations of heavy metals however the risk is considered to be low given the overstating of risk associated with leachate analysis and as such reliance should be on groundwater samples.

As the site currently comprises of open grass land and agricultural fields rainfall is not being intercepted and subsequently infiltrates freely into the underlying deposits, and where Made Ground is present can, potentially mobilising the identified contaminants.

The proposed development will create hardstanding cover across the site, thus reducing the amount of infiltration generated. This will in turn, reduce the amount of contaminants present in leachate off the site and reduce the risk further to the underlying aquifer and on-site water features.

Surface Water Receptor

A comparison of a surface water sample from the north of the site did not identify any elevated concentrations of determinants.

Given the elevated concentrations of copper and nickel within groundwater samples, an m-BAT assessment was undertaken, which determined that the determinants were not considered to be bioavailable and as such the elevated metal concentrations at the site are not considered to be impacting the surface water feature in the north of the site or causing an increased risk to aquatic life. This leaves the underlying Principal Aquifer as the critical receptor to assess.

It is recommended that during any future cut/fill works to create a development platform surface water sampling of the on-site receptors is completed to ensure no detrimental affect during remediation and enabling works.

Principal Aquifer

There is not considered to be a risk to the underlying Principal Aquifer as both leachate and groundwater analysis did not identify any elevated concentrations against DWS screening values. Additionally, there is not considered to be a significant source on site with the potential to present a risk to the underlying aquifer.

4.3. GROUND GAS RISK ASSESSMENT METHODOLOGY

The potential impact on the development from ground gases has been assessed with reference to standards and guidelines published in:

- CIRIA Report 665 – Assessing risks posed by hazardous ground gases to buildings (2007)
- BS8485:2015+A1:2019 – Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

BS8485 provides guidance on the level of gas protection requirements based upon the characteristic situation (CS) and the proposed development based on building type.

Therefore, in accordance with BS8485, based on the measured flow rates and hazardous gas concentrations, individual hazardous gas flow rates (Q_{hg}) shall be derived for each monitoring point, from which the site characteristic hazardous gas flow rate (Q_{hgs}), and then the Characteristic Situation (CS) can be determined.

The following equation should be utilised:

$$Q_{hg} = q\left(\frac{C_{hg}}{100}\right)$$

Where:
q is the measured flow rate (in litres per hour) of combined gases from the monitoring standpipe
C_{hg} is the measured hazardous gas concentration (in percentage volume/volume).

The subsequent derived gas screening value (GSV) should be the maximum Q_{hg} (flow rate x concentration as a percentage volume) for all the monitoring events.

A 'worst case check' may be carried out using the maximum recorded flow in any hole with the maximum concentration in any hole to present the plausible worst case conditions. Adoption of the worst case Q_{hg} requires thorough justification and reference to the CSM.

The final derived GSV can then be used to characterise the site as summarised in Table 4.7.

TABLE 4.7 SITE CHARACTERISATION BY GSV (BS8485:2015)

CS	HAZARD POTENTIAL	GSV (l/hr) FOR METHANE AND CARBON DIOXIDE	ADDITIONAL FACTORS
CS1	Very Low	< 0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	< 0.70	Typical measured flow rate <70 l/h (otherwise consider an increase to CS3)
CS3	Moderate	< 3.5	N/A
CS4	Moderate to High	< 15	N/A
CS5	High	< 70	N/A
CS6	Very High	> 70	N/A

Notes
1. The CS is equivalent to the characteristic GSV in CIRIA C665.
2. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter should be considered.
3. Gas Screening Value is the Borehole Gas Volume Flow Rate, in litres per hour, multiplied by the concentration in the air stream of the particular gas being considered.
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site-specific conditions.

4.4. MONITORING METHODOLOGY

Concentrations of methane (CH_4), carbon dioxide (CO_2) and oxygen (O_2) (hydrogen sulphide) were measured using a calibrated infrared gas analyser (GFM435) with gas flow rates measured using an integrated flow meter.

Gas measurements were recorded for a minimum of 500 seconds at each location, at which point the maximum concentration of CH_4 and CO_2, together with the lowest concentration of O_2 were recorded.

The results of the ground gas monitoring are presented in Table 4.8.

In addition to the raw data, the results for each individual standpipe have been assessed with reference to guidance provided in BS8485:2015. Based on the initial peak measured flow rates and hazardous gas concentrations, individual hazardous gas flow rates (Q_{hg}) have been derived for each monitoring point, from which an individual Characteristic Situation (CS) can ultimately be determined.

TABLE 4.8 SUMMARY OF GROUND GAS MONITORING RESULTS

WELL	STRATA	DATE	CH_4 PEAK (%V/V)	CH_4 STEADY (%V/V)	CH_4 Q_{hg} (l/hr)	CO_2 PEAK (%V/V)	CO_2 STEADY (%V/V)	CO_2 Q_{hg} (l/hr)	O_2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS101	CLAY / SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1011	Rising	0.1	0.1	1.00-4.00	2.70	1.60
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1016	Steady	0.1	0.1		2.70	1.85
WS102	SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1011	Rising	0.1	0.1	0.50-3.50	1.75	Dry
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		1.75	1.50
WS103	SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1012	Rising	0.1	0.1	1.00-3.00	2.10	Dry
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1016	Steady	0.1	0.1		2.10	Dry
WS105	SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1011	Rising	0.1	0.1	0.50-2.50	2.10	1.80
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1016	Steady	0.1	0.1		2.10	1.70
WS107	CLAY	13/04/2022	Damaged and repaired for following visit.											1.00-3.00	-	
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1024	Steady	0.1	0.1		3.00	0.95
WS110	SAND	13/04/2022	Well destroyed and unable to be repaired.													
		26/04/2022														
WS111	SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1012	Rising	0.1	0.1	0.50-1.50	2.30	0.87
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1023	Steady	0.1	0.1		2.30	1.00
WS113	CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1011	Rising	0.1	0.1	0.50-2.50	2.80	1.50
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1023	Steady	0.1	0.1		2.80	1.45
WS116	CLAY	13/04/2022	0.7	0.7	0.0007	0.1	0.1	0.0001	19.9	1012	Rising	0.1	0.1	0.50-4.50	4.70	0.50
		25/04/2022	0.2	0.1	0.0002	0.1	0.1	0.0001	19.9	1017	Steady	0.1	0.1		4.70	1.20
WS117	CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1012	Rising	0.1	0.1	2.00-4.00	4.20	0.60
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1017	Steady	0.1	0.1		4.20	3.85
WS119	CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1011	Rising	0.1	0.1	2.00-4.00	4.20	1.50
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1018	Steady	0.1	0.1		4.20	2.10

WELL	STRATA	DATE	CH_4 PEAK (%V/V)	CH_4 STEADY (%V/V)	CH_4 Q_{hg} (l/hr)	CO_2 PEAK (%V/V)	CO_2 STEADY (%V/V)	CO_2 Q_{hg} (l/hr)	O_2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS120	SAND	13/04/2022	0.3	0.3	0.0003	0.1	0.1	0.0001	19.4	1012	Rising	0.1	0.1	0.50-2.50	2.70	Dry
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1018	Steady	0.1	0.1		2.70	Dry
WS121	SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1012	Rising	0.1	0.1	1.00-2.00	1.92	Dry
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1018	Steady	0.1	0.1		1.95	Dry
WS122	SAND / CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.3	1012	Rising	0.1	0.1	1.00-4.00	2.50	1.30
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1018	Steady	0.1	0.1		2.50	1.55
WS123	CLAY	13/04/2022	0.4	0.4	0.0004	1.2	0.1	0.0012	20	1012	Rising	0.1	0.1	1.00-4.00	4.10	1.40
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		4.10	2.00
WS202	CLAY / SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1014	Rising	0.1	0.1	2.00-4.00	3.05	1.27
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		3.05	1.70
WS203	CLAY / SAND	13/04/2022	0.2	0.1	0.0004	1.2	0.1	0.0024	19.9	1014	Rising	0.2	0.2	1.00-2.50	2.20	1.12
		25/04/2022	0.1	0.1	0.0001	0.2	0.1	0.0002	19.9	1016	Steady	0.1	0.1		2.20	1.50
WS204	CLAY / SAND	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1014	Rising	0.1	0.1	2.00-5.00	4.50	1.35
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1016	Steady	0.1	0.1		4.50	1.85
WS208	CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1013	Rising	0.1	0.1	1.00-5.00	4.20	1.30
		25/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1016	Steady	0.1	0.1		4.20	1.85
WS210	SAND	13/04/2022	Well destroyed and unable to be repaired.													
		26/04/2022														
WS213	SAND / CLAY	13/04/2022	0.5	0.1	0.0005	0.6	0.1	0.0006	19.3	1014	Rising	0.1	0.1	0.50-1.50	1.60	1.00
		26/04/2022	0.1	0.1	0.0001	0.2	0.1	0.0002	19.9	1023	Steady	0.1	0.1		1.60	1.10
WS216	CLAY	13/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Rising	0.1	0.1	1.00-2.00	2.40	1.00
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1024	Steady	0.1	0.1		2.40	1.20
WS217	CLAY	13/04/2022	0.3	0.1	0.0006	0.1	0.1	0.0002	19.3	1012	Rising	0.2	0.2	0.50-3.00	3.20	1.40
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1024	Steady	0.1	0.1		3.20	1.75

WELL	STRATA	DATE	CH_4 PEAK (%V/V)	CH_4 STEADY (%V/V)	CH_4 Q_{hg} (l/hr)	CO_2 PEAK (%V/V)	CO_2 STEADY (%V/V)	CO_2 Q_{hg} (l/hr)	O_2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS218	CLAY / SAND	13/04/2022	Damaged and repaired for following visit.											1.00-2.00	-	-
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1024	Steady	0.1	0.1		1.85	1.60
WS221	CLAY	13/04/2022	Damaged and repaired for following visit.											2.00-4.00	-	-
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1024	Steady	0.1	0.1		3.70	3.35
WS223	SAND / CLAY	13/04/2022	Well destroyed and unable to be repaired.											1.00-3.50	-	-
		26/04/2022													-	-
WS225	CLAY / SAND	13/04/2022	Damaged and repaired for following visit.											0.50-3.50	-	-
		26/04/2022	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1023	Steady	0.1	0.1		2.65	1.20
RB105	CLAY / GRAVEL	13/04/2022	Well destroyed and unable to be repaired.											0.50-5.00	-	-
		26/04/2022													-	-

Notes

CIRIA Characteristic Situation	Q_{hg}		
CS1	<0.07	Typical Max CO2 <5 % Typical Max CH4 <1 %	Values in **BOLD** exceed CS1 Thresholds
CS2	<0.7	Flow rate not to exceed 70 l/hr otherwise consider increase to CS3	Values in BLUE denote water above level of response zone (flooded)
CS3	<3.5		
CS4	<15	Quantitative Risk Assessment required to evaluate scope of protective measures	

4.5. SUMMARY OF MONITORING RESULTS

4.5.1. GROUNDWATER

The water level within several of the monitoring wells was recorded to be above the top of the response zone (flooded) on a number of occasions, as summarised in Table 4.9, thus rendering some of the monitoring data unreliable. Therefore, each time a flooded well was encountered, the well was bailed and left to re-equilibrate. Wells were re-monitored after a period of 20–30 minutes.

Table 4.9 FLOODED MONITORING WELL DATA

Well	Visit 1 13/04/2022	Visit 2 25/04/2022 – 26/04/2022
WS117	-	Y
WS218	-	Y
WS221	-	Y

WS107, WS116, WS117, and WS216 were flooded on one occasion, whilst WS202 and WS204 were flooded on two occasions and therefore can not be utilised within the assessment.

Within remaining monitoring wells, groundwater levels were observed to generally decrease over the monitoring period.

4.5.2. BAROMETRIC PRESSURE

Visit 1 was undertaken during a period of relatively high, rising pressure, with pressure recorded to be between 1011-1014 mbar during the monitoring.

Visit 2 was undertaken during a period of steady pressure noted to be relatively high pressure, with pressures recorded to be between 1016-1023 mbar.

It is therefore considered that the visits have been undertaken over representative conditions. Further atmospheric pressure dynamics are expected to be captured during the remaining monitoring visits.

4.5.3. GAS FLOW

Throughout the monitoring period to date, flow rates were recorded to be between 0.1 l/hr (limit of detection (LOD)) and 0.2 l/hr.

4.5.4. GAS CONCENTRATIONS

Methane concentrations were recorded at concentrations ranging from 0.1% v/v (LOD) to 0.7% v/v. No elevated concentrations have been identified during the monitoring completed to date.

Carbon dioxide concentrations recorded within the monitoring wells to date range from 0.1% v/v (LOD) and a maximum peak concentration of 1.2% v/v. No elevated concentrations have been identified during the monitoring completed to date.

4.6. CONCLUSION

The determined Characteristic Situation for each standpipe for each visit is presented in Table 4.10. This indicates that based on the peak flow rates the site can currently be classified as Characteristic Situation (CS)1 – Very Low Gas Risk.

TABLE 4.10 GAS RISK PROFILE AND LOCATION

WELL	DATE	DEPTH TO WATER (m bgl)	MAX FLOW (l/hr)	MAX CH_4 (%V/V)	MAX CH_4 Q_{hg} (l/hr)	MAX CO_2 (%V/V)	MAX CO_2 Q_{hg} (l/hr)	CHARACTERISTIC SITUATION	NHBC TRAFFIC LIGHT
WS101	13/04/2022	1.60	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.85	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS102	13/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.50	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS103	13/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS105	13/04/2022	1.80	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.70	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS107	13/04/2022	Damaged and repaired for following visit.							
	26/04/2022	0.95	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS110	13/04/2022	Well destroyed and unable to be repaired.							
	26/04/2022								
WS111	13/04/2022	0.87	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	26/04/2022	1.00	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS113	13/04/2022	1.50	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	26/04/2022	1.45	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS116	13/04/2022	0.50	0.1	0.7	0.0007	0.1	0.0001	CS1	Green
	25/04/2022	1.20	0.1	0.1	0.0002	0.1	0.0001	CS1	Green
WS117	13/04/2022	0.60	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	3.85	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS119	13/04/2022	1.50	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	2.10	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS120	13/04/2022	Dry	0.1	0.3	0.0003	0.1	0.0001	CS1	Green
	25/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS121	13/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	Dry	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS122	13/04/2022	1.32	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.55	0.1	0.1	0.0001	0.1	0.0001	CS1	Green



WELL	DATE	DEPTH TO WATER (m bgl)	MAX FLOW (l/hr)	MAX CH_4 (%V/V)	MAX CH_4 Q_{hg} (l/hr)	MAX CO_2 (%V/V)	MAX CO_2 Q_{hg} (l/hr)	CHARACTERISTIC SITUATION	NHBC TRAFFIC LIGHT
WS123	13/04/2022	1.40	0.1	0.4	0.0004	1.2	0.0012	CS1	Green
	25/04/2022	2.00	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS202	13/04/2022	1.27	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.70	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS203	13/04/2022	1.12	0.2	0.2	0.0002	1.2	0.0024	CS1	Green
	25/04/2022	1.50	0.1	0.1	0.0001	0.2	0.0002	CS1	Green
WS204	13/04/2022	1.35	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.85	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS208	13/04/2022	1.30	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	25/04/2022	1.85	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS210	13/04/2022	Well destroyed and unable to be repaired.							
	26/04/2022								
WS213	13/04/2022	1.00	0.1	0.5	0.0005	0.6	0.0006	CS1	Green
	26/04/2022	1.10	0.1	0.1	0.0001	0.2	0.0002	CS1	Green
WS216	13/04/2022	1.00	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
	26/04/2022	1.20	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS217	13/04/2022	1.40	0.2	0.3	0.0006	0.1	0.0002	CS1	Green
	26/04/2022	1.75	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS218	13/04/2022	Damaged and repaired for following visit.							
	26/04/2022	1.60	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS221	13/04/2022	Damaged and repaired for following visit.							
	26/04/2022	3.35	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
WS223	13/04/2022	Well destroyed and unable to be repaired.							
	26/04/2022								
WS225	13/04/2022	Damaged and repaired for following visit.							
	26/04/2022	1.20	0.1	0.1	0.0001	0.1	0.0001	CS1	Green
RH101	13/04/2022	Well destroyed and unable to be repaired.							
	26/04/2022								

E3P has assessed the previous variables and come to the following conclusions:

- Ground gas monitoring to date suggests that the site can be predominantly classified as CS1, and it is considered that gas protection measures will not be required.
- The site is predominantly glaciofluvial deposits and till of SANDS and CLAY at depths of 0.10m bgl to 7.00 bgl.

- Made Ground has been encountered in localised areas at a maximum depth of 1.20m bgl but more generally was encountered at a depth less than 0.60m bgl.

- With the absence of any persistent gas source and gas generation potential, it is considered by E3P that the site can be classified as CS1, and therefore no gas protection measures are required. The final ground gas regime will be confirmed following the completion of the ground gas monitoring regime.

It is recommended that the full ground gas assessment and recommended protection measures (if applicable) are agreed with the local authority prior to their adoption on site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

4.7. POTABLE WATER SUPPLY

This section provides a summary of the site investigation data with reference to the selection of potable water supply pipework. The assessment is made with reference to the UK Water Industry Research (UKWIR) publication "*Guidance on the selection of Water Supply Pipes to be used in Brownfield Sites*"

TABLE 4.11 PIPELINE SELECTION PE THRESHOLD CONCENTRATIONS

Contaminant Group	PE-threshold (mg/kg)	Concentrations at Current pipeline depth (mg/kg)
Total VOC	0.5	<LOD
Total BTEX And MTBE	0.1	N/A
Total SVOCs (Excluding PAH and those substances marked with an *)	2	<LOD
EC5-EC10 Aliphatic and Aromatic Hydrocarbons	2	<1.2
EC10-EC16- Aliphatic and Aromatic Hydrocarbons	10	<6.0
EC16-EC40 Aliphatic and Aromatic Hydrocarbons	500	19
Phenols (From SVOC Analysis)*	2	N/A
Cresols and Chlorinated Phenols (From SVOC Analysis)	2	N/A
Ethers*	0.5	N/A
Nitrobenzene*	0.5	N/A
Ketones*	0.5	N/A
Aldehydes*	0.5	N/A
Amines	Fail	N/A
Other Consideration		
Are there any exceedances of the PE threshold outside of the pipeline depth?	No	
Is free product present in soil and groundwater?	None identified.	
Could hydrocarbon impact at greater depth than current pipeline depth be mobilised by rising groundwater levels?	No – heavy end hydrocarbon impact and low solubility PAH has not been identified within any chemical analysis across the site.	

Will soils impacted with above determinands likely be utilised elsewhere on site?	None identified.
Will soils be imported to site as part of any future earth works	Currently unknown, however it is likely materials will be required to be imported to site in order to create the development platform along with roadways. The importation of materials may affect the WIR Risk Assessment which should be updated after completion.

Notes - Pipe line depth normally between 0.75m–1.35m

Based on the assessment of current site conditions it is likely that PE pipe will be required at the proposed development, however an updated UKWIR should be completed following enabling works as conditions may vary following importation of materials.

4.8. CONCEPTUAL SITE MODEL

Following the completion of the intrusive site investigation, chemical analysis and risk assessment, the conceptual model shown in Table 4.12 has been prepared for the site.

TABLE 4.12 CONCEPTUAL MODEL

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL1 PL2	Heavy Metals, non-volatile PAH (Made Ground/infilled features)	Dermal contact. Dermal contact and ingestion.	Future site users. Off-site receptors.	Unlikely	**Very Low**	**Negligible**
Discussion: No exceedances of heavy metals or non-volatile PAHs have been identified with the soil analysis completed on site to date. **Recommendation:** No further assessment required. The installation of a suitable growing medium will be required in areas of soft landscaping. A cover system will likely be required in areas of retained Made Ground.						
PL3	ACM in Made Ground	Inhalation of dust.	Future site users. Buildings. Off-site land users.	Unlikely	**Low**	**Low**
Assessment: Asbestos has not been identified within the samples analysed. However, asbestos cement sheeting was identified on site in the north of the site south of the off-site dwelling. These stockpiles should be dealt with in accordance with Control of Asbestos Regulations (2012). **Recommendation:** During the remediation and enabling works these should be removed from site by a licensed asbestos removal contractor. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 4.1. All works associated with these materials should be completed in accordance with the Control of Asbestos Regulations (2012) and industry best practice as detailed in CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk).						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL4	Volatile Contaminants such as hydrocarbons (Made Ground)	Inhalation of vapours. Migration through permeable strata and preferential pathways.	Future site users. Off-site receptors.	Unlikely	**Very Low**	**Negligible**
Assessment: No elevated concentrations of volatile contaminants such as hydrocarbons, mercury of naphthalene have been identified during the site investigation. **Recommendation:** No further assessment is required.						
PL4	Methane, carbon dioxide (potentially infilled features on and within 250 m of the site)	Inhalation of gas. Migration through permeable strata and preferential pathways. Explosion in confined spaces.	Future site users. Buildings. Off-site land users.	Low likelihood	Low	**Low**
Assessment: Localised areas Made Ground and organic deposits have been identified as potential sources of hazardous ground gas in the south west and centre of the site. Glacial till will likely restrict migration of any ground gas into shallow foundations. **Recommendation:** Preliminary monitoring suggests that the site can be classified as CS1/Green, however this will be confirmed on completion of the monitoring.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL5	Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds (Made Ground)	Surface runoff. Migration through permeable strata and preferential pathways. Perched waters migration.	Groundwater (Principal aquifer). Surface water (Spa Brook).	Likely	Moderate	Low
Assessment: Elevated concentrations of heavy metals against EQS screening have been identified within leachate and groundwater samples from a stream in the north of the site. Glacial till across the site may reduce downward migration into the underlying bedrock aquifer. No elevated concentrations were identified within a surface water sample form a stream/ditch in the north of the site; an m-BAT assessment has been identified which confirmed the elevated concentrations of copper and nickel were not bioavailable. There is not considered to be a risk to the underlying Principal Aquifer as both leachate and groundwater analysis did not identify any elevated concentrations against DWS screening values. **Recommendation:** Sampling of surface water required during remediation and enabling works to ensure no detrimental effect to on-site surface water bodies should they remain as part of the proposed development.						
PL6	Sulphate (potential ash within Made Ground)	Sulphate attack on concrete.	Building structure.	Unlikely	Low	LOW
Assessment: The soils at the site meet generally meet Class DS-1, AC-1s. Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within Made Ground deposits within WS225 at 0.60 m bgl. **Recommendation:** Concrete should be designed in accordance with the chemical testing results.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL7	Organic contaminants such as hydrocarbons, solvents (Made Ground)	Ingestion of tainted water supply.	Future site users. Water pipes.	Unlikely	Low	Low
Assessment: An initial review of chemical data against UK WIR parameters show no exceedances at pipeline depth and PE pipe would likely be viable. **Recommendation:** Based on the assessment of current site conditions, it is likely that PE pipe will be suitable on site. This will need to be confirmed with a UKWIR risk assessment post remediation as conditions may differ than those currently on-site.						
PL8	Phytotoxic contaminants (Made Ground)	Direct Contact (plant uptake).	Flora.	Very Unlikely	Very Low	Negigible
Assessment: Contamination has not been encountered within shallow Made Ground across the site which may be taken up by flora in soft landscaping. **Recommendation:** Installation of a growing medium or clean cover system where Made Ground is present within any areas of soft landscaping to prevent plant uptake of contaminants.						

Main exposure pathways:
PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plants.



5. GEOTECHNICAL ASSESSMENT

5.1. PROPOSED DEVELOPMENT

E3P understands that Satnam Group has been granted outline planning permission for the development of the Peel Hall Site for a predominantly residential lead end-use that will comprise of circa 1200 dwellings with associated infrastructure with some commercial and retail development within the masterplan.

5.2. SUMMARY OF GROUND CONDITIONS

MADE GROUND

Made Ground was encountered in 22 exploratory hole locations at depths from ground level to a maximum proven depth of 1.20 bgl (TP124). However, the majority of Made Ground encountered was encountered to a depth <1.00mbgl.

Where encountered the Made Ground generally comprised of a reworked topsoil of a dark brown sandy clay or a clayey fine to medium sand. This was often underlain by a reworked slightly gravelly sandy clay or a greyish brown clayey fine to medium sand with gravel of mudstone, sandstone and occasionally brick and rare glass, asphalt, clinker and ash. Within TP211 the reworked clay also contained cobbles of brick.

Underlying the topsoil in TP106, a gravelly sand was encountered with gravel of sandstone, mudstone and rare fragments of brick and clinker. The deepest area of Made Ground encountered in the central area of the site just south of the drainage ditch within TP124 comprised of a greyish brown clayey fine to medium sand, with a land drain identified at 0.70m bgl.

In the area to the south of Peel Hall, within WS225, Made Ground is comprised of a grey mottled brown slightly gravelly sandy clay, with gravel of clinker, ash sandstone, mudstone and fragments of brick.

A Depth of Made Ground Plan is presented as Drawing 15-740-006 in Appendix III.

TOPSOIL

Natural topsoil was encountered within the majority of the exploratory hole locations with the exception of those identified as reworked topsoil as described above.

Topsoil is generally comprised of a brown sandy CLAY with frequent rootlets or a dark brown clayey fine to medium SAND with frequent rootlets.

DRIFT

Drift deposits were encountered within all exploratory hole locations.

Drift deposits were varied across the site but generally comprised of either firm to stiff brown sandy slightly gravelly CLAY with gravel of mudstone and sandstone or loose to dense clayey slightly gravelly grey or brown fine to medium SAND.



Loose sands were identified within WS102, WS103, WS104, WS105, WS106, WS110, WS115, WS120, WS121, WS122, WS201, WS205, WS206, WS220, WS224, CP101 and CP102. Loose sands were identified between 0.25-5.45m bgl.

Very soft or soft CLAY was identified within SA107 at 0.30-1.00mbgl and TP148 at 1.20-2.50mbgl; the materials within TP148 are likely to be attributed to possible pond fill on site as it comprised of dark grey CLAY with frequent organic matter.

Other drift deposits containing organic matter was identified within TP103, WS123, WS204, WS208 and WS212 at depths of between 0.10 -3.30mbgl.

Silty CLAY drift deposits were identified within RB101, RB103 and RB105.

SOLID

Weathered red sandstone recovered as a GRAVEL was encountered across the site, within exploratory hole locations, CP103, RB101, RB103, RB104, and RB105 at depths between 3.80 m bgl to 7.25 mbgl.

WS213 refused at 1.86mbgl. on suspected weathered bedrock.

GROUNDWATER

Groundwater was encountered during the site investigation between 0.30-5.10m bgl.

Running sands were encountered across the site at depths of between 0.50m and 2.30mbgl.

Saturated drift deposits have been noted across the site.

5.3. SITE PREPARATION

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the *Manual of Contract Documents for Highway Works (MCHW)*. This should include the following:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Removal of all concrete hardstanding where applicable.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.
- Buried structures and old foundations have been encountered on site in the northern central sector. These should be excavated from below the proposed development footprint with the resulting void backfilled.
- Backfilling of drainage ditches where not remaining as part of the proposed development.

5.4. FOUNDATION CONDITIONS AND ASSESSMENT OF POTENTIAL BEARING CAPACITIES

In due consideration of the identified ground conditions, in-situ and laboratory geotechnical testing, E3P has undertaken an assessment of the net safe allowable bearing pressure (ABP) within the underlying natural stratum to assist in the detailed design of foundations and infrastructure and determine the target founding stratum. The results of this assessment are summarised in Table 5.1.

TABLE 5.1 SUMMARY OF ABP

GRANULAR SOILS			
Description	**Depth (Range m bgl)**	**Relative Density**	**Allowable Bearing Pressure (kN/m^2)**
SAND	1.00 – 5.00	Loose	70 - 95
SAND	1.00 – 5.00	Medium Dense	1.00 - 286
SAND	2.00 – 7.00	Dense	157 - 456
GRAVEL (One location)	7.00	Medium Dense	406
GRAVEL	4.00 – 7.00	Dense	325 - 422
COHESIVE SOILS			
Description	**Depth (range m bgl)**	**Undrained Shear Strength (Cu) (kN/m^2)**	**Allowable Bearing Pressure (kN/m^2)**
Firm low strength CLAY	1.00–4.00	20–39	41–80
Stiff medium strength CLAY	1.00-5.00	40-73	82-151
Very stiff high strength CLAY	1.00-5.00	75-143	115-295
Very stiff very high strength CLAY	1.00-5.00	151-237	310-488

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net allowable bearing pressure, the suitable target founding stratum has been identified as the underlying stiff to very stiff glacial till and medium dense to dense sands.

However, given the significant variable deposits on site, and localised topography changes, prior to the detailed design of suitable foundation solutions, a programme of remediation and enabling works will be required to prepare the development platform suitable for construction. Buried obstructions associated with the former buildings in the north of the site will require removal in their entirety.

Upon completion of the enabling works, it is likely that the most cost-effective option for the majority of the site would be a combination of shallow strip foundations, mass trench fill foundations and to re-engineer the ground using vibro stone columns (VSCs) to support a doubly reinforced shallow strip foundation.

However, it should be noted that across the site, running sands have been identified along with saturated drift deposits that results in the reduction in the calculated safe ABP by 50%. As such, a driven piled foundation solution may be required in these areas or the utilisation of VSC utilising a bottom feed.

Soft CLAY deposits with a Cu <30kN/m2 have been identified in SA107 between 0.30-1.00m and TP148 between 1.20-2.50m. Within these areas, along with areas of ponds and drainage ditches to be infilled, a driven piled foundation solution would be required. Where loose SANDs are present it is likely that VSCs can be utilised.

A high pressure gas main is present along the northern boundary of the site; additionally service infrastructure is noted in the central and western sectors of the site; as such consideration of the use of VSC within these areas will be required, and where not suitable driven piled foundations may be required as an alternative.

The final plot specific foundation will largely be determined by the proposed elevation of the structure and the interaction with the shallow saturated stratum.

Table 5.2 demonstrates the suitability of ground improvement for the proposed development.

TABLE 5.2 GROUND IMPROVEMENT DESIGN RISK MATRIX

RISK ITEM	COMMENT	PASS/FAIL
Soft clays with an undrained shear strength less than 30 kN/m^2	CLAY soils are generally firm to very stiff with Cu > 50 kN. Isolated areas of softer clay soils were encountered with Cu < 30 kN/m^2; however, it is considered that these will either be piled or soft material excavated to remove the organic deposits.	**PASS**
Ground with peat layers close to foundation level or the base of the stone column, or where intermediate layers of peat are thicker than 200 mm, either as a single layer or the sum of the thicknesses of individual layers throughout the length of the stone column	None identified.	**PASS**
Voided filled ground, e.g. old water tanks, pottery, glass bottles, concrete rubble or brick fill of unsuitable grading	Made Ground identified in the south east and central sector of the site will require processing to render the site suitable for VSC. The below ground obstructions in the northern central sector of the site will require excavation and processing into a graded aggregate suitable for vibro treatment.	**PASS – on completion of enabling works**
Loose or non-engineered fill not previously subject to rising or fluctuating water levels saturation	None identified.	**PASS**

RISK ITEM	COMMENT	PASS/FAIL
Filled ground still settling or expected to settle under its own weight or due to the effects of surcharging/upfilling where there is a high organic content or where decay is continuing	None identified.	**PASS**
Fill, containing degradable material where organic material forms more than 15% of fill by volume	None identified.	**PASS**
Clays with a plasticity index greater than 40%	Within TP148 at 1.60mbgl a plasticity index greater than 40% was identified; this is considered an anomaly and not representative of the site as a whole. The area should be delineated and affected materials removed.	**PASS – on completion of enabling works.**
Highly sensitive soils liable to collapse or remoulding	Loose and running sands have been identified across the site. Trail Pits and window samples were noted to collapse.	**PASS**
Cohesive soils with trees in influencing distance	Plots within tree influence will require modelling and will either be subject to a piled or mass trench-fill solution.	**PASS**
Overall Risk Rating and Suitability for Vibratory Ground Improvement		**PASS**

Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.

At this time it is not possible to accurately define the foundation types due to the absence of a detailed tree survey and a proposed development plan; however, based on our extensive experience of similar sites, we would anticipate that the final foundation solution would be a combination of the following:

- Shallow strip foundations bearing on stiff to very stiff sandy CLAY or medium dense to dense SANDs at circa 1.00 m bgl;
- Trench fill to support reinforced strip foundations in areas of variable ground and/or potential tree influence;
- Re-engineer of Made Ground for use of VSC to support a doubly reinforced shallow strip foundations;
- Driven piled foundation in areas of former ponds should they be retained and areas of soft CLAYS; and,
- Driven piled or VSC by bottom feed foundation solution in areas of running sands and saturated deposits.

It is recommended that, at working drawing stage, a foundation schedule is prepared for the development taking account of the physical change of natural clay soils and the current/proposed locations of trees.

5.5. GROUND FLOOR SLABS

Current building control regulations require that where infilled ground is present to depths in excess of 600 mm, or where the substratum is variable in terms of the structure and settlement potential, or where clay soils are present within the influence of existing or proposed trees, a suspended floor slab is required.

In this instance, it is considered that for the majority of substructures, the underlying stratum would have in excess of 600 mm of cohesive soils and, as such, a suspended floor slab will be required.

Where a cast in-situ suspended slab is utilised with no subfloor void, appropriate compressible material (heave precautions) will be required in the construction of the substructure.

5.6. HEAVE PRECAUTIONS

The site has been proven to be underlain by clay soils, which are susceptible to volumetric instability due to fluctuations in moisture content, particularly within influencing distance of trees as per the NHBC/LABC conjectured zones of influence.

The site has been noted to be underlain by low to medium volume change potential clays, with a single localised location classified as high, however this is considered to be an anomaly.

A conservative approach should be followed and the site should be deemed to be of medium volume change potential therefore heave precautions are required to the internal face of the external load-bearing walls (within tree influence).

If a ground beam is to be constructed within the zone of tree influence, heave precautions are required to the underside of this and edge beams.

If the ground floor slab is to be constructed with a beam and block floor, a minimum subfloor void of 250 mm is required within any structures located in the zone of conjectured tree influence.

If the ground floor slab is constructed with a cast in-situ suspended floor slab, then heave precautions that can tolerate 50 mm of clay swelling are required within any part of the floor slab to be located within the zone of influence of a tree.

A summary of heave precautions is presented in Table 5.3.

TABLE 5.3 SUMMARY OF HEAVE PRECAUTIONS

		MINIMUM VOID DIMENSION FOR FOUNDATIONS, GROUND BEAMS AND SUSPENDED IN-SITU CONCRETE GROUND FLOORS		MINIMUM VOID DIMENSIONS UNDER PRECAST CONCRETE AND SUSPENDED TIMBER FLOORS
Plasticity Index of Soil	**Required Foundation Depth (m)**	**Thickness of Void Former Against Side of Foundation or Ground Beam (mm)**	**Thickness of Void Former on Underside of Edge Beam and Floor Slab (mm)**	**Void Dimension (mm)**
High Plasticity (> 40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	35	150	300
	1.5–2.0	25	75	
Moderate Plasticity (20–40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	25	100	250
	1.5–2.0	25	50	
Low Plasticity (< 20)	2.0–2.5	N/A	50	200
	> 2.0	No Special Precautions		

5.7. HIGHWAYS CONSTRUCTION

A programme of remediation and enabling works will be required to remediate the proposed road subgrade in accordance with the requirements of the Manual of Contract Documents for Highway Works Volume 1 Specification For Highway Works (Series 600-Earthworks) for a method compaction.

It is considered that the material can be re-engineered using method compaction to achieve a CBR in excess of 5% if works are completed in favourable climatic conditions.

5.8. DRAINAGE

12 BRE365 Soakaway tests have been completed however, an infiltration rate was only able to be calculated within SA102 where the test was completed within SAND drift deposits; the infiltration rate was noted to be good to moderate within this location. In the remaining locations, and especially where CLAY drift deposits were present, the soakage potential was significantly reduced.

It is considered there is a limited potential that soakaway drainage may be suitable for the proposed development. However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – *Soakaway Design.*

5.9. CONCRETE DURABILITY

Based upon the results of the chemical analyses it is considered that subsurface concrete can be designed in accordance with Design Sulphate Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with the recommendations provided in BRE *Special Digest 1* (2005).

Elevated sulphate concentrations meeting Class DS-2, AC-2 were noted within the Made Ground deposits in WS225 at 0.60 m bgl. However, upon completion of site enabling works it will, in all likelihood, be DS1 AC1s.

5.10. EXCAVATIONS

Trial pits were variable in stability within granular natural strata deposits; however, it is considered that near-surface excavations will be feasible.

Site observations indicated that excavations should be feasible in the near surface with normal plant; however, obstructions were identified in the near surface, including former foundations and former floor slabs in the area to the south of the residential unit in the northern central area of the site. It is anticipated that any obstructions will be grubbed out during the reduced-level dig for the substructure works.

However, due to the depth and variability of the granular deposits and likelihood of trench collapse, it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97.

If local pumping of groundwater is required during the advancement of excavations for the proposed foundations then consideration should be given to the potential for dewatering gravels in the surrounding areas that may cause structural damage to building substructures in close proximity to the site.

TABLE 5.4 CIVIL ENGINEERING EXCAVATION RISK MATRIX

RISK ITEM	PRESENT	COMMENT
Running Sands	Yes	Running sand has been identified in TP101, TP105, TP107, TP110, TP112, TP114, TP115, TP120, TP124, TP140, TP146, TP203, TP205, TP206, TP207, TP209, TP215 and TP216. The running sands were identified at depths ranging from 0.50 – 2.30 m bgl. Excavations for a traditional spread foundation will not be viable within saturated stratum (without dewatering) due to the inability to cast the concrete foundation.
Minor Water Ingress	Yes	Minor water ingress will require localised dewatering/sump pumping during the construction of site drainage infrastructure. Ingress of water into foundation excavation will potentially flood foundation excavations, limiting the viability of spread foundations to be constructed.
Shallow Bedrock	Yes	Bedrock has been recovered as a weathered SANDSTONE sandy gravel between 1.86m-5.20m bgl.

5.11. CONSTRUCTION ACTIVITY AND INSPECTION

The following activities and inspections should be incorporated into the site works:

- Due to the variability of the soils at the site, it is recommended that sufficient allowance is made for the inspection of formations and sub-formations to foundations and pavement construction.
- Excavations where access is required should be subject to a risk assessment from a competent person and, where appropriate, mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 should be utilised.
- It is considered that dewatering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond.
- Where access to confined spaces is required, appropriate mitigation measures should be addressed within the construction stage health and safety plan. Particular account should be taken of the gas results.
- The presence of potential contamination and mitigation measures should be addressed as part of the construction stage health and safety plan and should include measures to design out the risks, reduce their impact and, finally, to include the use of personnel protective equipment (PPE).

5.12. GEOTECHNICAL RISK REGISTER

POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Bedrock	On site	100	Bedrock has been recovered as a weathered SANDSTONE sandy gravel between 1.86m-5.20m bgl.
Obstructions	Northern Central Area	10	Below ground obstructions have been identified in the northern central sector of the site and will require grubbing out in their entirety in order to construct the proposed development.
Trench collapse	All	100	Loose and running sand are present on site that are subject to collapse. All excavations should be supported or battered back in accordance with guidance contained in CIRIA R97.
Mature trees	Centre and boundaries of the site	35	Arboriculture survey required to determine areas of potential tree influence. Foundations will locally require deepening in areas of tree influence.
Volume change potential clay	On site	100	The site has been assessed to be underlain by low to medium volume change potential clays. A conservative approach should be followed and the site should be deemed to be of medium volume change potential therefore heave precautions are required to the internal face of the external load-bearing walls (within tree influence). An isolated area of high volume change potential has been identified within TP148 and this area should be delineated during remediation and enabling works with further testing completed.
Running sands	On site	40	Running sands have been identified within TP101, TP105, TP107, TP110, TP114, TP115, TP120, TP124, TP146, TP203, TP205, TP206, TP207, TP209, TP215 and TP216 between depths of 0.50-2.30m bgl.
Ground dissolution	N/A	N/A	Data searches indicate negligible risk.



POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Concrete design	-	100	Concrete classification will be DS–1 AC–1s. Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within Made Ground deposits in WS225 at 0.60 m bgl.
Low-permeability ground	On site	90	Soakaways have only proven effective in one localised area within the north of the site however locations across the remainder of the site were unable to calculate an infiltration coefficient and therefore soakaways are unlikely to be deemed suitable.
Services/sensitive structures	On site	30	A review of online records has identified identifying a LHP (High Pressure) gas main in the north west of the site transecting the site in a west to east direction along the northern boundary. In addition to a low pressure gas main is present along Peel Cottage Lane and Radley Lane in the north east of the site. Electricity infrastructure is present in the north east of the site, within the centre of the site comprising overhead power lines and along the eastern boundaries. A surface water sewer is present along the south-western boundary and within the north-western corner of the site is a combined public sewer, foul sewer, surface water sewer and an abandoned sewer. Surface water sewers are present in the east of site located within the playing fields. Comms clean water pipes are present in Peel Cottage Lane and surrounding roadways of the site. BT infrastructure is present in the west of the site. BT infrastructure is also present along Peel Cottage Lane and the surrounding roadways of the site. Within the south east of the site, BT has been identified crossing the north of the community centre and recreation ground. Consideration of the above services should be sought when deciding the appropriate foundation solution for the site.
Abnormal foundation solutions	On site	50	Loose granular deposits, running sands and localised areas of soft clays have been identified on which may require an abnormal foundation solution (VSC or Piled).



POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Areas not investigated	All	10	During the site investigation, the site was noted to be waterlogged in large areas of the site and as such access to these areas was restricted. Additionally, areas within the south-east, south and northern central sectors of the site comprised areas of Himalayan Balsam and Giant Hogweed which stopped access to these areas. Areas of dense woodland restricted access to the northern central sector of the site, along with electricity infrastructure and a residential property. Works were restricted along the northern boundary of the site due to the presence of a high pressure gas main. Overhead electricity infrastructure was also present across the central sector of the site.
Surface water features	On site Centre and North	25	Spa Brook is present in the centre of the site, furthermore several unnamed ditches and tributaries of Spa Brook are present on site. Several ponds are present on site.
Historically infilled ponds	On site	40	Several historically infilled ponds are present across the site. These will require delineation during remediation and enabling works.

5.13. FURTHER WORKS

Based on the findings of the intrusive site investigation, the following additional works are recommended to be completed in due course:

- Further investigation of inaccessible areas.
- Plot-specific foundation schedule (upon receipt of the final development levels).
- CL:AIRE DoW CoP Materials management plan.
- Pre-commencement geotechnical materials testing to confirm earthworks design;
- Geotechnical earthworks strategy (infrastructure).
- Remediation and enabling works strategy.
- Construction phase Surface Water Management Plan.
- Full three-dimensional earthworks cut/fill model;
- Settlement Analysis for earthworks design; and,
- Build Phase Mitigation Plan and design of specialist ground gas mitigation measures.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. CONTAMINATED LAND ASSESSMENT

Human Health	A Tier I human health risk assessment has been undertaken using the chemical analysis results of the soils and comparing them to the relevant Tier I criteria. This assessment has not identified the presence of any exceedances. Therefore, the site has been classified as low risk to human health. Asbestos sheeting has been identified in the northern central sector of the site. During the remediation and enabling works these should be removed from site by a licensed asbestos removal contractor. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 4.1. Isolated areas of Made Ground on site will require segregating during the enabling works and further analysis undertaken to determine its suitability for retention on-site. Where retained it is likely a cover system will be required; the remainder of the site can be constructed using the installation of a 300mm growing medium. Chemical analysis of the natural clay drift deposits and natural topsoil has identified these soils acceptable for use as subsoil and topsoil within the proposed garden areas subject to validation testing.
Controlled Waters	Low risk to controlled waters.
Ground Gas	Characteristic Situation 1 (pending completion of gas monitoring).
Potable Water	The assessment for the current ground conditions indicates that PE pipeline would be suitable. However, post-remediation and enabling works ground conditions may be different from those identified during this site investigation. This will need to be confirmed following the completion of a UKWIR risk assessment following remediation and enabling works.

6.2. GEOTECHNICAL ASSESSMENT

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net allowable bearing pressure, the suitable target founding stratum has been identified as the underlying stiff to very stiff glacial till and medium dense to dense sands.

Buried obstructions in the north of the site will require removal in their entirety during a phase of remediation and enabling works. Running sands, loose SANDs and saturated drift deposits have been identified across the site. Isolated areas of soft CLAYs have also been identified at the site.

Based on the above, it is anticipated that the proposed development can be constructed on a combination of shallow strip, mass trench fill, and the re-engineer of Made Ground and loose SANDs for the use of vibro stone columns to support a doubly reinforced shallow strip foundation. Where saturated deposits and running sands are present a bottom feed VSC foundation solution will be required or driven piled foundations. Driven piled foundations will be required in areas of soft CLAYs and in the vicinity of former ponds and where drainage ditches are currently present but will be infilled as part of the proposed development.

Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.

It is recommended that at working drawing stage a foundation schedule is prepared for the development, taking account of the physical change of natural clay soils and the current/proposed locations of trees.

END OF REPORT

APPENDIX I
LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.

8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.

10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II
GLOSSARY

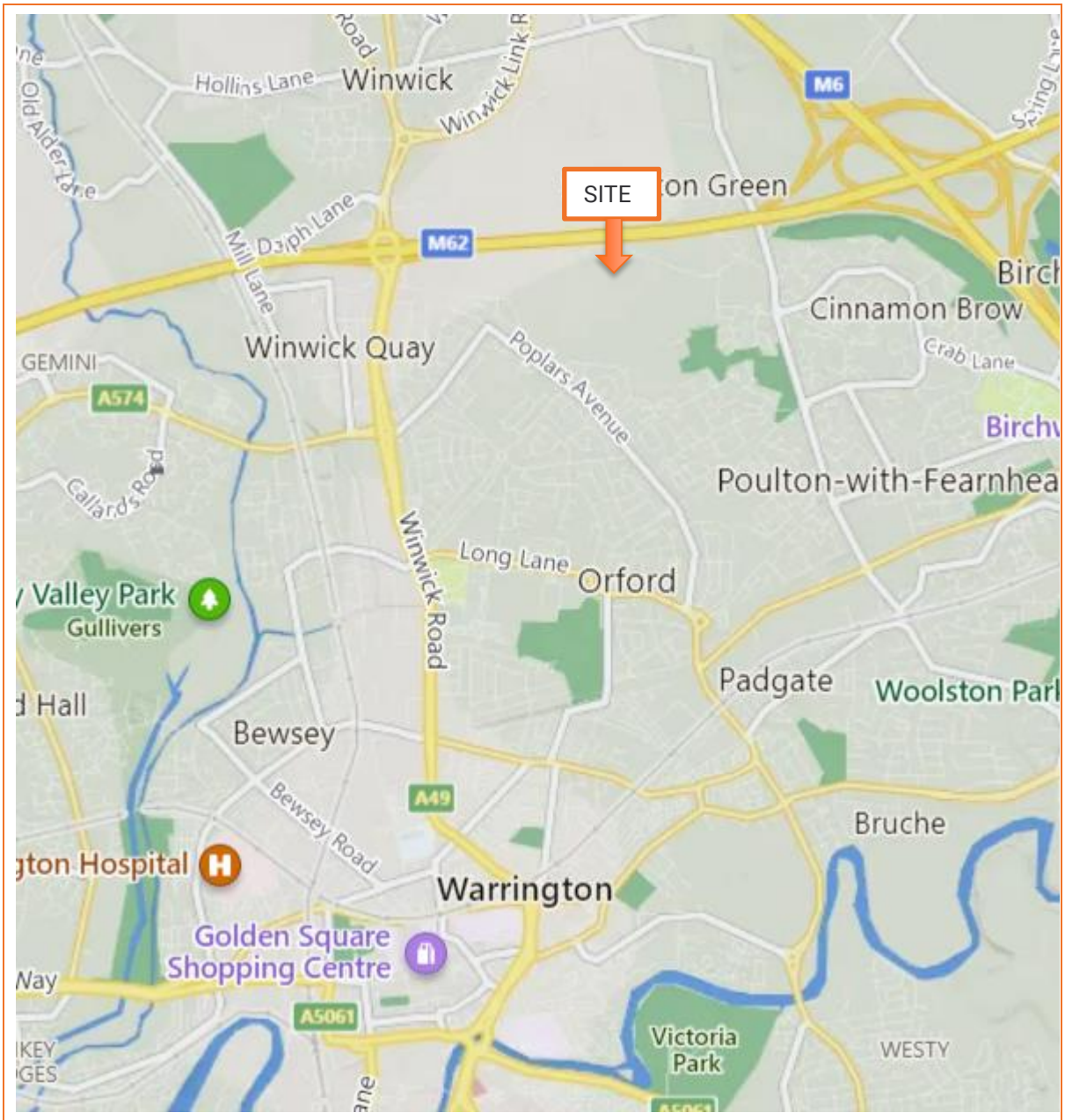
TERMS

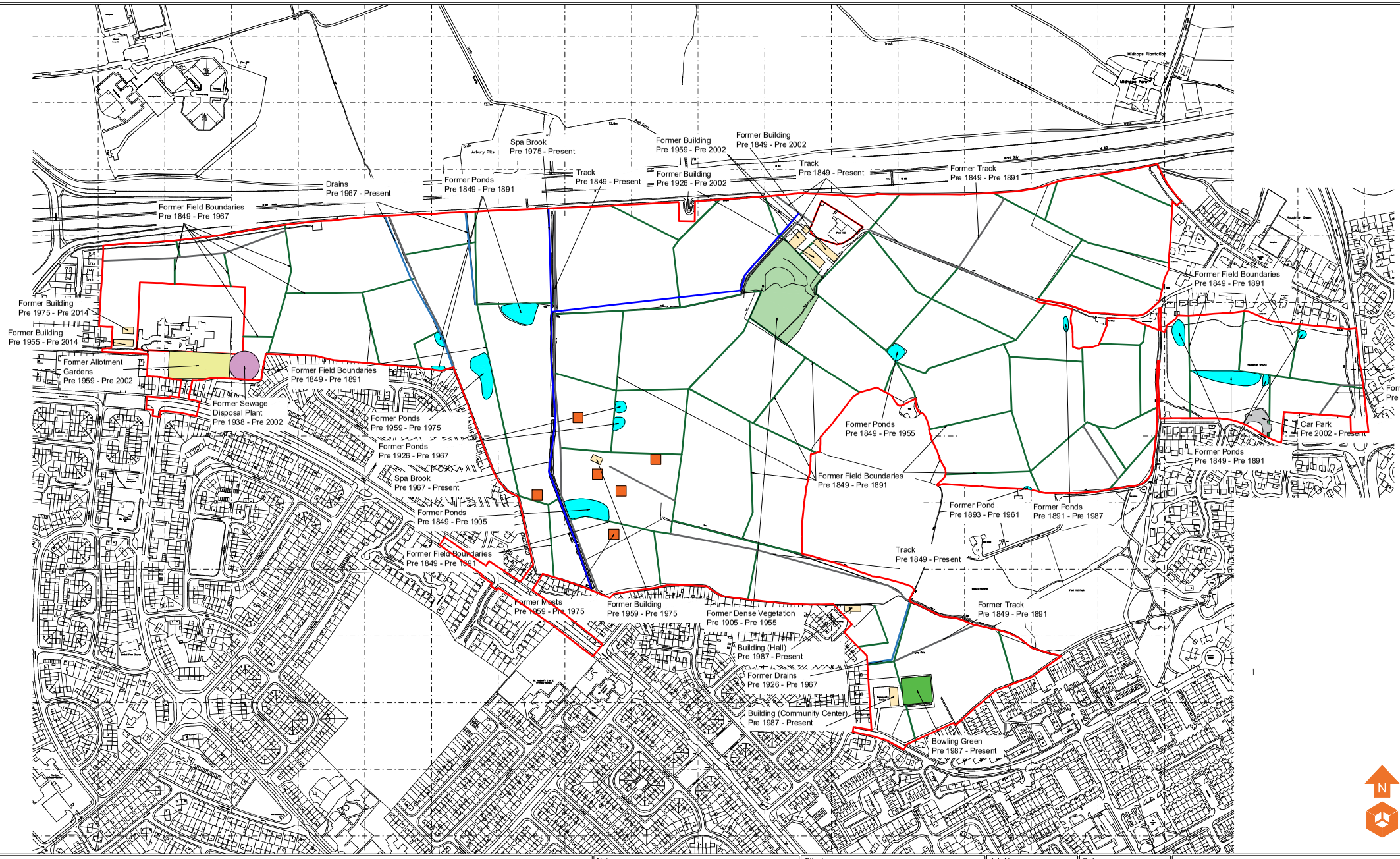
ACM	Asbestos-containing material	**MMP**	Materials management plan
ADS	Acoustic design statement	**ND**	Not detected
AST	Above-ground storage tank	**NDP**	Nuclear density probe
BGS	British Geological Survey	**NMP**	Noise management plan
BSI	British Standards Institute	**NPSE**	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	**NR**	Not recorded
CA	Coal Authority	**PAH**	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	**PCB**	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	**PI**	Plasticity index
CIRIA	Construction Industry Research Association	**PID**	Photo ionisation detector
CLEA	Contaminated land exposure assessment	**POS**	Public open space
CML	Council of Mortgage Lenders	**PPE**	Personnel protective equipment
CoC	Contaminants of concern	**ProPG**	Professional practice guidance
CSM	Conceptual site model	**QA**	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	**SGV**	Soil guideline value
DWS	Drinking water standard	**SPH**	Separate-phase hydrocarbon
EA	Environment Agency	**SPT**	Standard penetration test
EQS	Environmental quality standard	**SVOC**	Semi-volatile organic compound
FFL	Finished floor level	**TPH**	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	**TPH CWG**	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	**UKWIR**	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	**UST**	Underground storage tank
HCV	Health criteria value	**VCC**	Vibro-concrete column
ICSM	Initial conceptual site model	**VOC**	Volatile organic compound
LEL	Lower explosive limit	**VRSC**	Vibro-replacement stone columns
LMRL	Lower method reporting limit	**VSC**	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	**WHO**	World Health Organisation
MCV	Moisture condition value	**WRAP**	Waste and Resources Action Programme

MIBK	Methyl isobutyl ketone	**WTE**	Water table elevation
m	Metres	**ppm**	Parts per million
km	Kilometres	**mg/m^3**	Milligram per metre cubed
% v/v	Percent volume in air	**m bgl bgl**	Metres below ground level
mb	Millibars (atmospheric pressure)	**m bcl**	Metre below cover level
l/hr	Litres per hour	**mAOD**	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	**kN/m^2**	Kilonewtons per metre squared
ppb	Parts per billion	**µm**	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	**SSRT**	Site Specific Remediation Target
PSD	Particle Size Distribution	**DD**	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	**Mc**	Moisture Content
ρ	Bulk Density	**GPR**	Ground Penetrating Radar
NDP	Nuclear Density Probe	**FFL**	Finished Floor Level
LEL	Lower Explosive Limit	**UKWIR**	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	**LOD**	Limit of Detection

APPENDIX III
DRAWINGS

DRAWING 15-740-001 – SITE LOCATION PLAN





Historical Features

- Former Buildings
- Former Allotment Gardens
- Former Sewage Disposal Plant
- Former Ponds
- Former Masts
- Former Dense Vegetation
- Bowling Green
- Spa Brook
- Former Tracks / Roads
- Former Field Boundaries
- Car Park

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 003

Scale: NTS@ A3

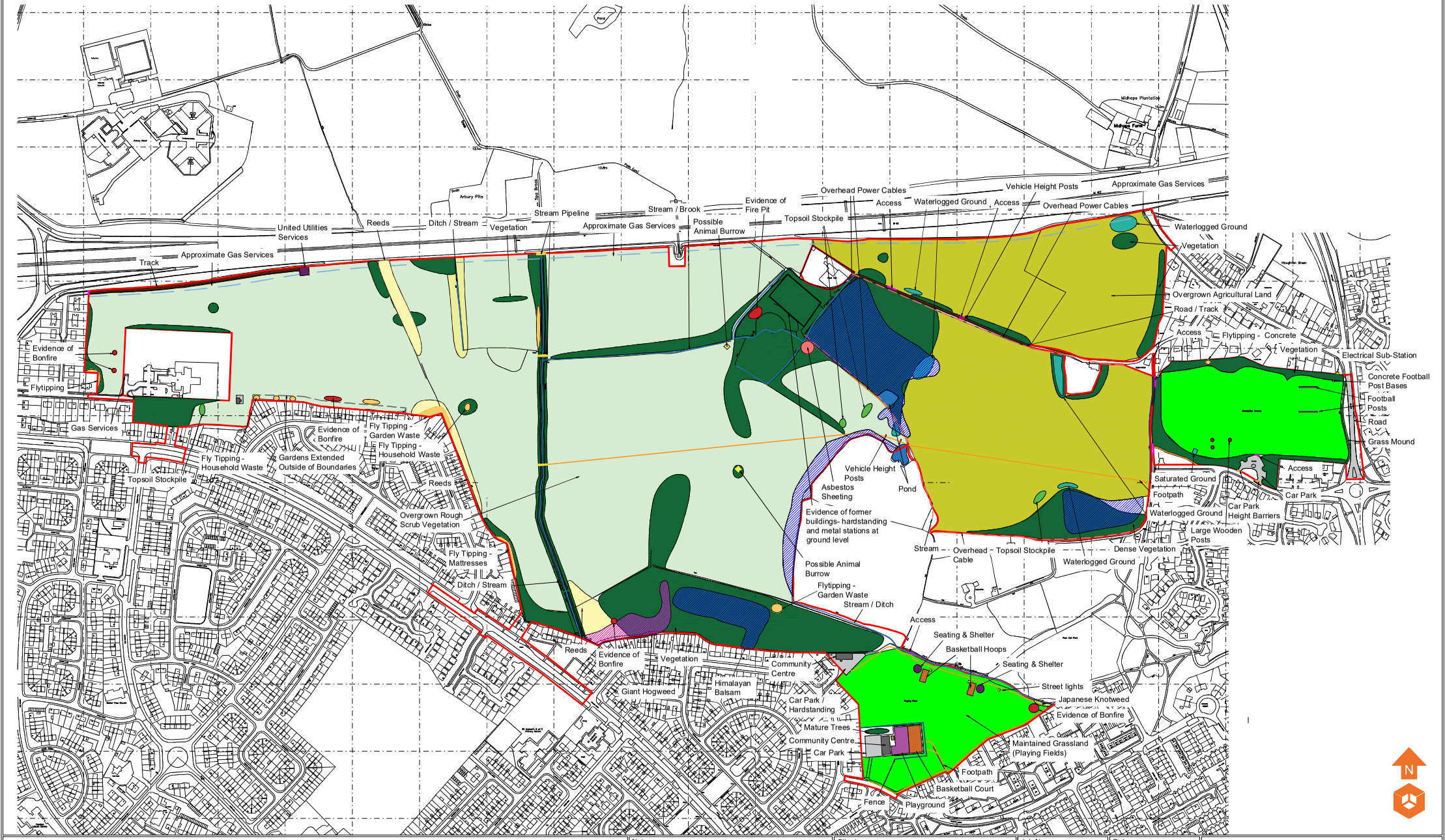
Phase	Issue	Date	Drawn	Checked
P1	REVB	24.05.2022	EB	BH
P1	REVA	07.03.2022	EB	BH

Job Title: Peel Hall, North Warrington

Drawing Title: Historical Features Plan

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Site Features

- Football Posts
- Electrcial Sub-Station
- Grass Mound / Topsoil Stockpile
- Pond
- Wooden Posts
- Vegetation / Trees
- Saturated / Waterlogged Ground
- Access
- Footpath
- Car Park
- Track
- Overhead Cables
- Evidence of Bonfire / Firepit
- Fly Tipping
- Reeds
- Possible Animal Burrow
- Car Park Height Barrier
- Ditch / Stream
- Stream Pipeline
- Extended Garden Boundaries
- Gas Services
- Vehicle Height Posts
- Japanese Knotweed
- Himalayan Balsam
- Giant Hogweed
- Overgrown Agricultural Land
- Maintained Grassland (Playing Fields)
- Overgrown Rough Scrub Vegetation
- Evidence of Former Buildings
- Asbestos Sheeting

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 004

Scale: NTS@ A3

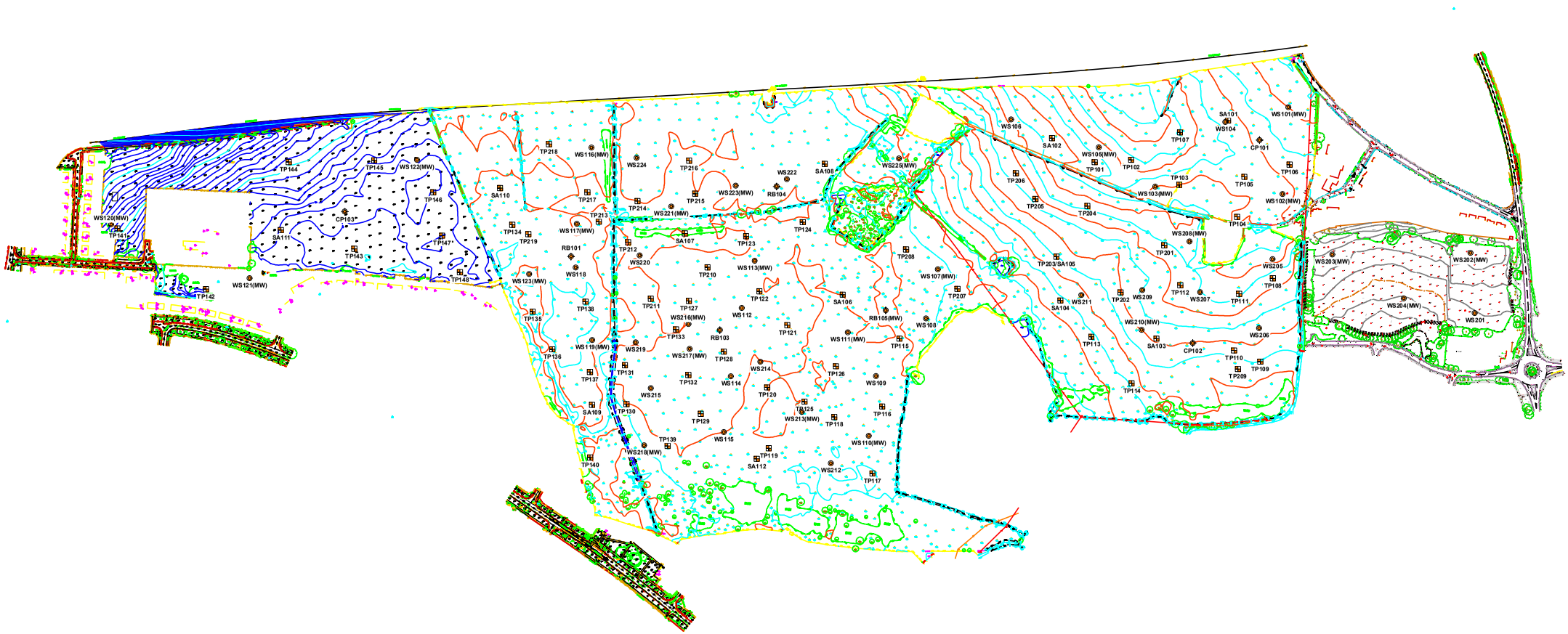
Phase	Issue	Date	Drawn	Checked
P1	REVB	24.05.2022	EB	BH
P1	REVA	29.03.2022	HM	BH

Job Title: Peel Hall, North Warrington

Drawing Title: Site Features Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Window Sample Probehole Location with Install
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location
- Approximate Rotary Borehole Location

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 005

Scale: NTS@ A3

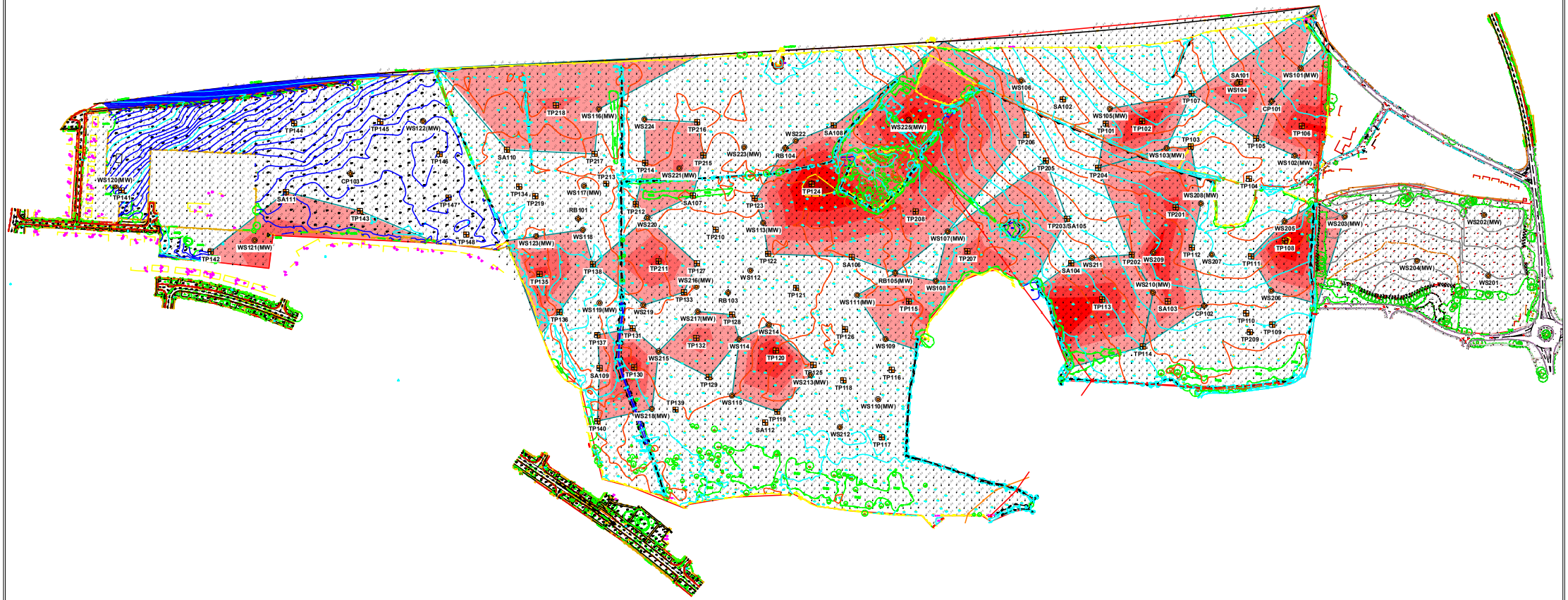
Phase	Issue	Date	Drawn	Checked
P1	REVD	24.05.2022	EB	BH
P1	REVC	19.05.2022	LM	GC
P1	REVB	16.05.2022	EB	GC
P1	REVA	06.04.2022	EB	BH

Job Title: Peel Hall, North Warrington

Drawing Title: Exploratory Hole Location Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location

Made Ground Depth (m)

- Depth of Made Ground 0.01 - 0.24m
- Depth of Made Ground 0.25 - 0.49m
- Depth of Made Ground 0.50 - 0.74m
- Depth of Made Ground 0.75 - 0.99m
- Depth of Made Ground 1.00 - 1.24m
- Depth of Made Ground 1.25 - 1.49m
- Depth of Made Ground >1.50m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVC	24.05.2022	EB	BH
P1	REVB	23.05.2022	EB	BH
P1	REVA	14.04.2022	EB	BH

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 006

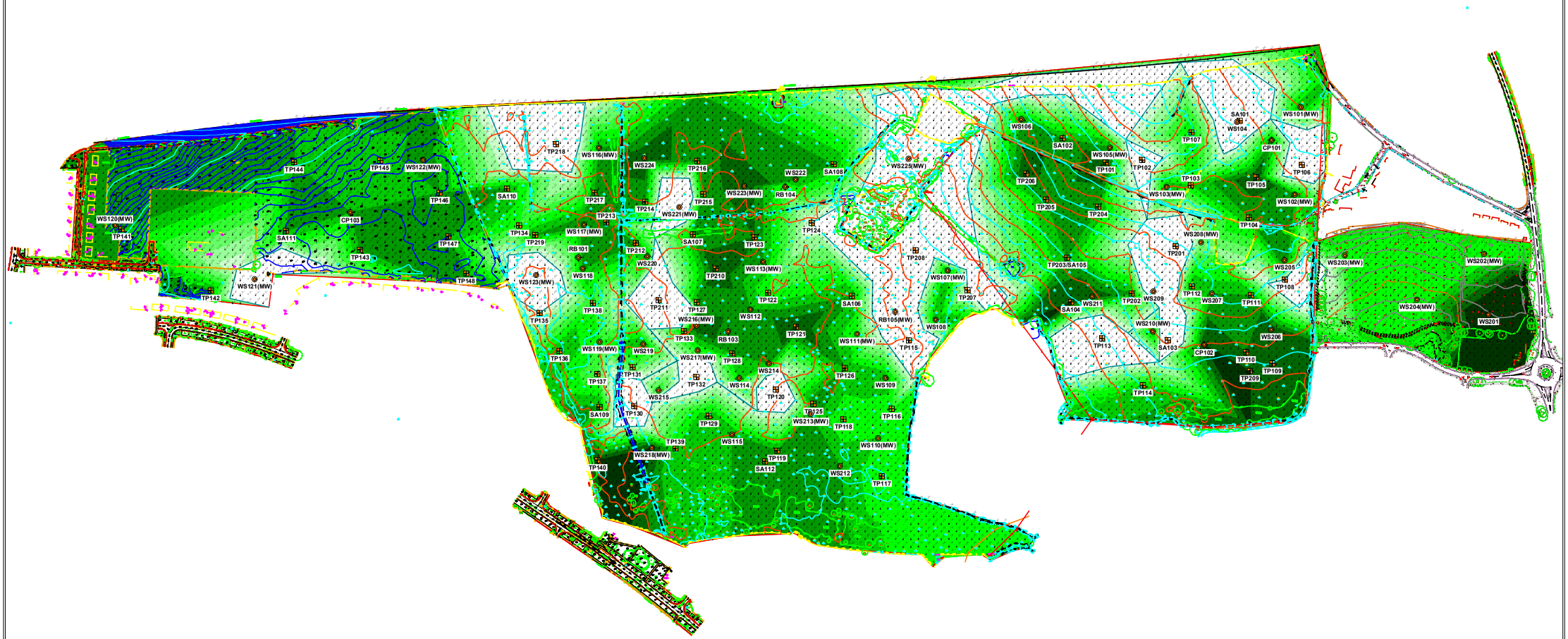
Scale: NTS@ A3

Job Title: Peel Hall, North Warrington

Drawing Title: Depth of Made Ground Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location

Topsoil Depth (m)

- Depth of Topsoil 0.01 - 0.04m
- Depth of Topsoil 0.05 - 0.09m
- Depth of Topsoil 0.10 - 0.14m
- Depth of Topsoil 0.15 - 0.19m
- Depth of Topsoil 0.20 - 0.24m
- Depth of Topsoil 0.25 - 0.29m
- Depth of Topsoil 0.30 - 0.34m
- Depth of Topsoil 0.35 - 0.39m
- Depth of Topsoil >0.40m

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 007

Scale: NTS@ A3

Phase	Issue	Date	Drawn	Checked
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P1	REVB	23.05.2022	EB	BH
P1	REVA	19.04.2022	EB	BH

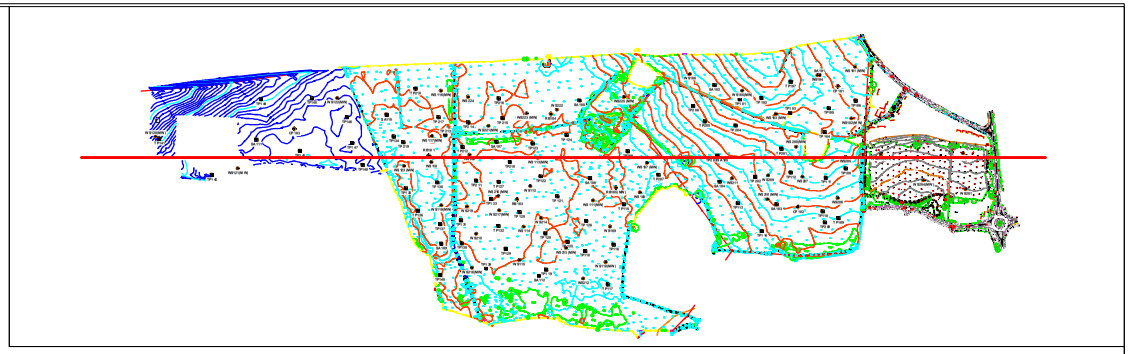
Job Title: Peel Hall, North Warrington

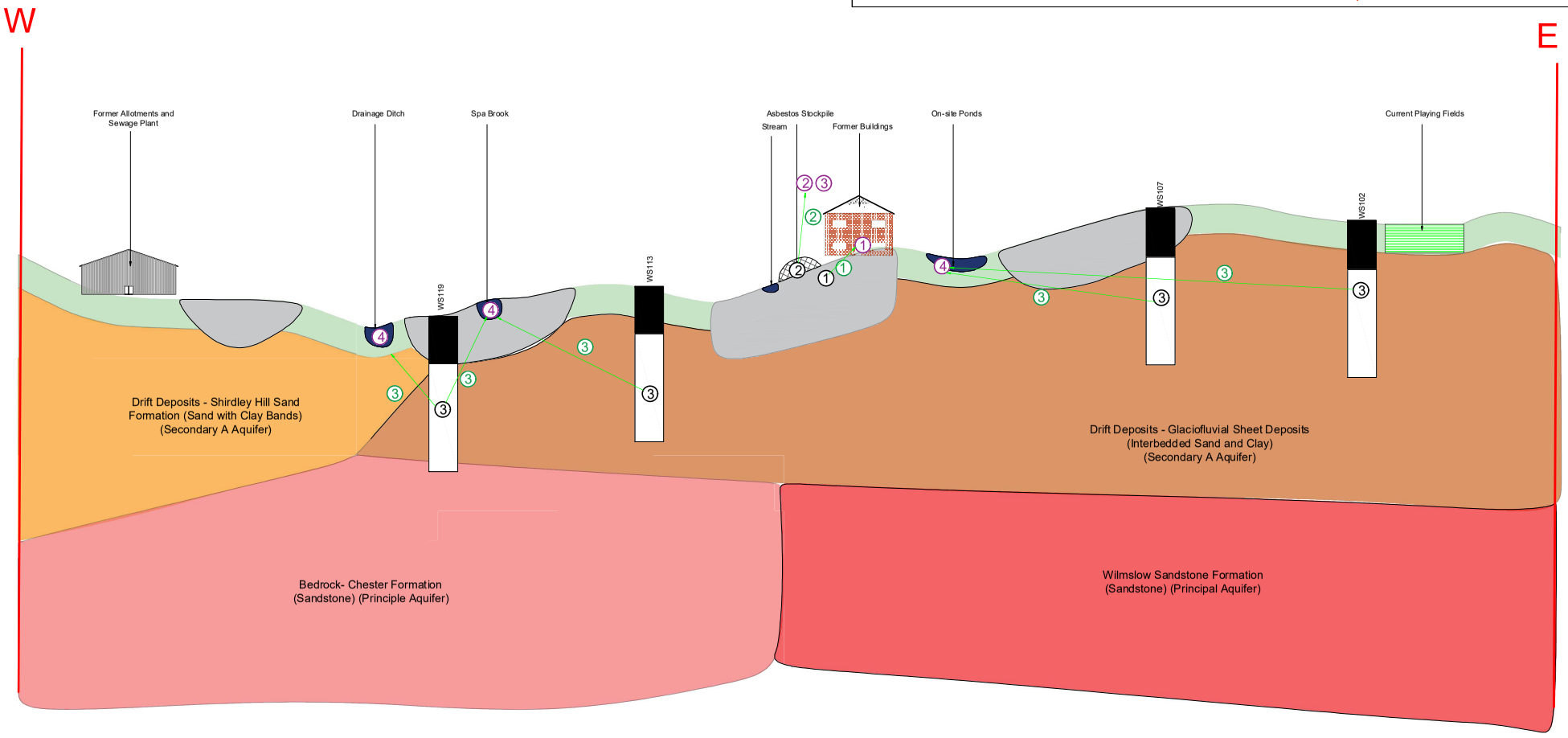
Drawing Title: Depth of Topsoil Plan

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Geology Key

- Topsoil
- Drift Deposits - Shirdley Hill Formation
- Drift Deposits - Glaciofluvial
- Bedrock - Chester Formation
- Bedrock - Wilmslow Sandstone Formation
- Made Ground

Sources

1. Made Ground - Sulphates
2. Asbestos
3. Heavy Metals in Groundwater

Receptors

1. Buildings
2. Future End Users
3. Construction Workers
4. Surface Water Feature

Pathways

1. Sulphate Attack
2. Dust Inhalation
3. Lateral / Downward Migration

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVB	24.05.2022	EB	BH
P1	REVA	11.05.2022	EB	BH

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 010

Scale: NTS@ A3

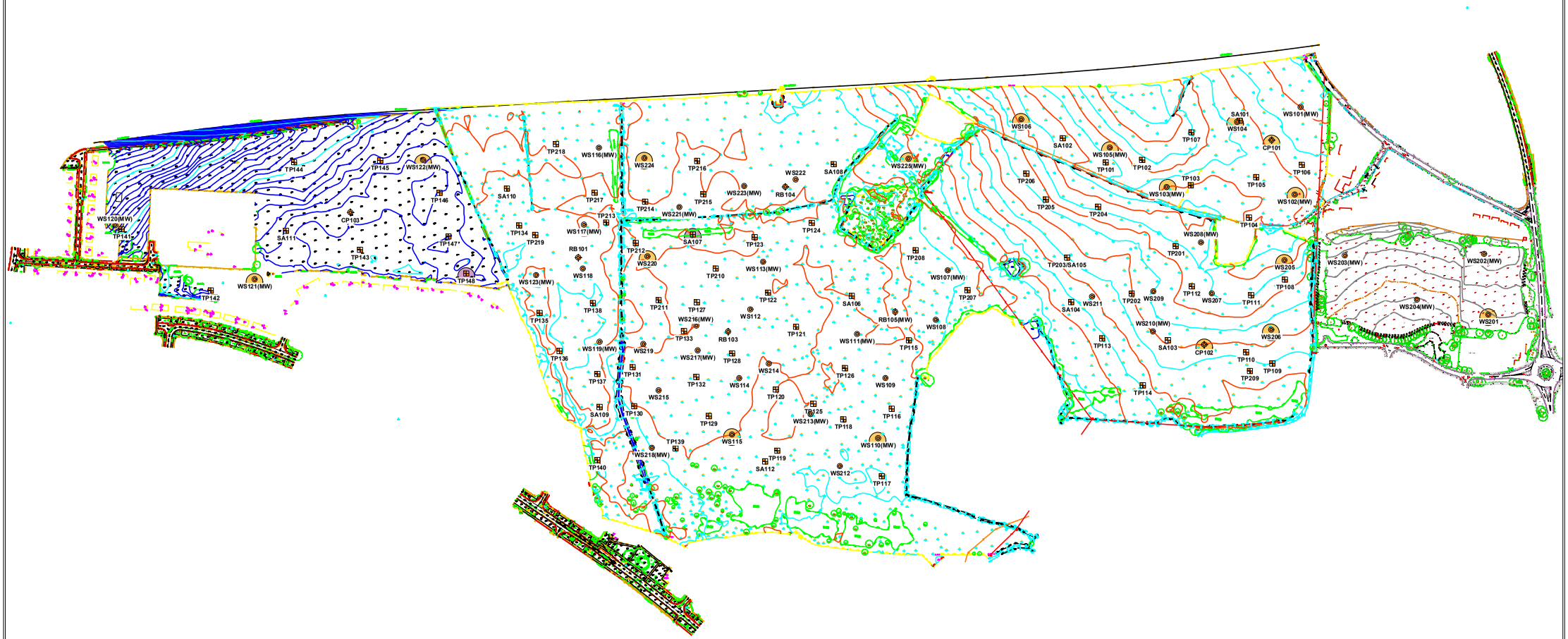
Job Title: Peel Hall, North Warrington

Drawing Title: Conceptual Site Model

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location
- Loose SANDS
- Soft CLAY

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 014

Scale: NTS@ A3

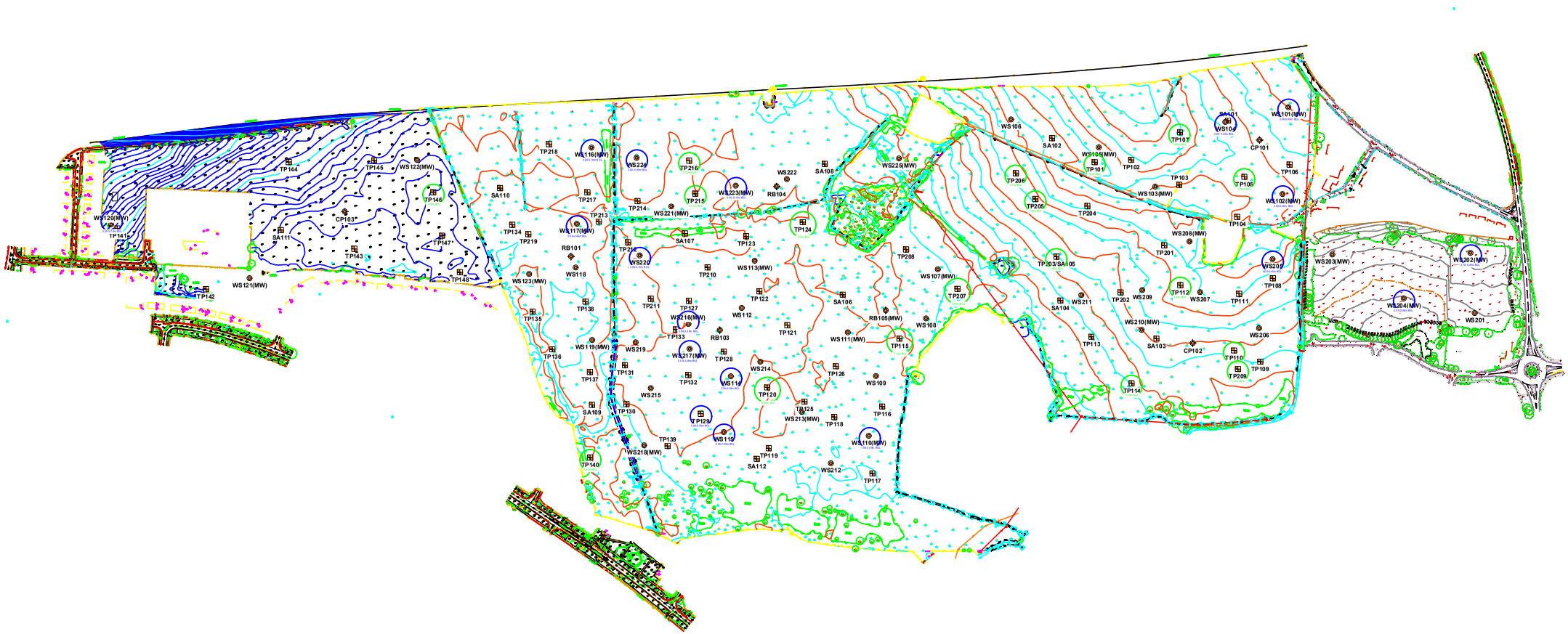
Phase	Issue	Date	Drawn	Checked
P1	REVB	24.05.2022	EB	BH
P1	REVA	11.05.2022	EB	BH

Job Title: Peel Hall, North Warrington

Drawing Title: Loose Sands and Soft Clay Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Window Sample Probehole Location with Install
- Approximate Trial Pit Location
- Approximate Cable Percussive Borehole Location
- Approximate Soakaway Test Location
- Approximate Rotary Borehole Location
- Saturated Drift Deposits
- Running Sands

Notes:

Client: Satnam Group

Job No: 15-740

Date: 24.05.2022

Drawing No: 016

Scale: NTS@ A3

Phase	Issue	Date	Drawn	Checked
P1	REVA	24.05.2022	EB	BH

Job Title: Peel Hall, North Warrington

Drawing Title: Saturated and Running Sands Plan

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APPENDIX IV
PHOTOGRAPHS

PLATE 1 SPA BROOK IN THE CENTRE OF THE SITE



PLATE 2 VIEW OF SITE FACING SOUTH IN THE CENTRE OF THE SITE



PLATE 3 VIEW OF SITE FACING WEST FROM THE CENTRE OF THE SITE



PLATE 4 SEASONAL WETLANDS IN THE CENTRE OF THE SITE



PLATE 5 REMAINING STRUCTURE FROM THE FORMER SEWAGE DISPOSAL IN THE SOUTH WEST OF THE SITE



PLATE 6 VIEW OF SITE FACING SOUTH EAST



PLATE 7 VEGETATION STOCKPILE



PLATE 8 STREAM TO THE SOUTH OF PEEL HALL



PLATE 9 ASBESTOS SHEET CEMENT SOUTH OF PEEL HALL



PLATE 10 VIEW OF SITE IN THE NORTH OF THE SITE



PLATE 11 OVERHEADS ON SITE



PLATE 12 TRAIL PIT IN THE NORTH OF THE SITE



PLATE 13 TRAIL PIT IN THE WEST OF THE SITE



PLATE 14 UNSTABLE TRIAL PIT



PLATE 15 GROUND CONDITIONS



PLATE 15 GROUND CONDITIONS



PLATE 16 WELL INSTALL



PLATE 17 WELL INSTALL IN THE PLAYING FIELDS



APPENDIX V
E3P EXPLORATORY HOLE LOGS

Trial Pit Log

TrialPit No: TP101
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361815.82 - 391864.37 Level: 17.78	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.20 x 0.60 Depth 2.10	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.40	17.38		Dark brown slightly gravelly very sandy CLAY with frequent rootlets. Gravel is fine subangular to subrounded of sandstone and mudstone. (TOPSOIL).
1.80				2.10	15.68		Brown slightly clayey very gravelly fine to medium SAND. Gravel is fine subangular to subrounded of mudstone and sandstone.
							End of Pit at 2.10m

1
2
3
4

Trial Pit Photographs



Trial Pit 101



Trial Pit 101 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.80m bgl - seepage. 3. Running sand identified at 1.80m bgl. 4. Unstable from 0.65m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP102
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361863.84 - 391867.46 Level: 19.02	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.30 x 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	18.67		MADE GROUND: Dark brown slightly gravelly sandy clay with frequent rootlets. Gravel is fine subangular to subrounded of sandstone and mudstone. (Reworked Topsoil).
	0.55	HVP	63				MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine to medium subangular to subrounded of mudstone and sandstone. (Land drain 0.50m bgl). (Reworked clay).
	0.80	HVP	85				
	1.00	D		0.90	18.12		
	1.00	HVP	126				Stiff medium strength brown mottled grey slightly gravelly sandy CLAY with occasional lenses of brown fine to medium SAND. Gravel is fine to medium subangular to subrounded of coal, mudstone and sandstone.
	1.40	HVP	89				
	1.50	ES					
	1.70	HVP	113				
				1.80	17.22		End of Pit at 1.80m

1
2
3
4

Trial Pit Photographs



Trial Pit 102



Trial Pit 102 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP103
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361927.71 - 391834.33	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.20 × 0.60	Scale 1:30
Client: Satnam Group		Depth 1.90	Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.25	17.34		Dark brown slightly gravelly clayey fine to medium SAND with frequent rootlets. Gravel is fine subangular to subrounded of mudstone and sandstone. (TOPSOIL).
▼ 0.60							Dark brown clayey fine to medium SAND.
				1.20	16.39		Grey clayey fine to medium SAND with rare pockets of organic matter.
▼ 1.90	1.80	ES		1.90	15.68		End of Pit at 1.90m

1
2
3
4

Trial Pit Photographs



Trial Pit 103

Remarks: 1. Complete. 2. Water strike encountered at 0.60 - perched and at 1.90m bgl - slow ingress. 3. Unstable from 0.80m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP104
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362004.20 - 391791.94 Level: 17.58	Date 21/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	17.28		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	ES					Firm medium strength brown mottled grey slightly sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of coal, mudstone and sandstone. Circa 1.00m bgl becomes stiff high strength.
	0.60	HVP	65				
	1.00	HVP	77				
	1.50	D					
	1.50	HVP	100				
				1.70	15.88		End of Pit at 1.70m

Trial Pit Photographs



Trial Pit 104



Trial Pit 104 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP105
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362013.60 - 391844.89 Level: 17.70	Date 21/03/2022
Location: Warrington		Dimensions (m): 1.90 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.40	17.30		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
▼ 0.60							Dark grey silty clayey fine to medium SAND.
▼ 0.90				1.10	16.60		Light brown slightly clayey fine to medium SAND.
				2.00	15.70		End of Pit at 2.00m

Trial Pit Photographs



Trial Pit 105



Trial Pit 105 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.60m bgl- perched. 3. Running sand identified at 0.90m bgl. 4. Unstable from 0.50m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP106
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362073.47 - 391861.12 Level: 17.09	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.40 x 0.60 Depth 1.90	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.40	ES		0.30	16.79		MADE GROUND: Dark brown sandy clay with frequent rootlets. (Reworked Topsoil).
				0.80	16.29		MADE GROUND: Reddish brown clayey gravelly fine to medium sand. Gravel is fine to medium subangular to subrounded of sandstone and mudstone with rare fragments of brick and clinker.
	1.00	HVP	65				Firm medium strength reddish brown mottled grey slightly gravelly very sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone. Circa 1.40m bgl becomes stiff high strength.
	1.40	HVP	95				
	1.80	HVP	114				
				1.90	15.19		End of Pit at 1.90m

Trial Pit Photographs



Trial Pit 106



Trial Pit 106 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

			TrialPit No TP107 Sheet 1 of 1
Project Name: Peel Hall	Project No. 15740	Co-ords: 361928.49 - 391903.71 Level: 19.15	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.60 Depth 2.10	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	18.90		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				0.70	18.45		Brown clayey fine to medium SAND.
	0.80	ES					Light brown slightly clayey fine to medium SAND.
	1.00	B					
▼ 1.80				2.10	17.05		End of Pit at 2.10m

1 2 3 4

Trial Pit Photographs



Trial Pit 107



Trial Pit 107 Spoil

Remarks: 1. Complete. 2. Running sand identified at 1.80m bgl. 3. Unstable from 1.10m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP108
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362051.23 - 391710.64 Level: 15.87	Date 21/03/2022
Location: Warrington		Dimensions (m): 3.80 x 0.60 Depth 1.85	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	15.57		MADE GROUND: Dark brown very clayey fine to medium sand with frequent rootlets. (Reworked Topsoil).
							MADE GROUND: Greyish brown clayey fine to medium sand. (Land drain 0.70m bgl).
	1.25	HVP	55	1.10	14.77		Firm medium strength grey mottled brown slightly gravelly sandy CLAY. Gravel is fine subangular to rounded of mudstone, sandstone, and coal. Circa 1.60m bgl. becomes stiff high strength.
	1.60	HVP	75				
	1.80	HVP	81	1.85	14.02		End of Pit at 1.85m

Trial Pit Photographs



Trial Pit 108



Trial Pit 108 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP109
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362034.71 - 391600.48 Level: 14.02	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.10 × 0.60 Depth 1.75	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	13.67		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.60	HVP	81				Stiff high strength reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
	1.10	HVP	90				
	1.20	ES					
	1.40	HVP	99				
	1.60	HVP	91				
				1.75	12.27		End of Pit at 1.75m

Trial Pit Photographs



Trial Pit 109



Trial Pit 109 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP110
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362000.05 - 391615.36 Level: 14.49	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES		0.35	14.14		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.80	B		1.10	13.39		Light greyish brown slightly clayey fine to medium SAND.
1.70	1.90	HVP	81	1.80	12.69		Grey slightly clayey fine to medium SAND.
	2.10	HVP	93	2.20	12.29		Stiff high strength reddish brown mottled dark grey slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
							End of Pit at 2.20m

Trial Pit Photographs



Trial Pit 110



TP110 Spoil

Remarks: 1.Complete. 2. Running sand identified at 1.70m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP111
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362006.82 - 391690.15 Level: 16.19	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.10 x 0.60 Depth 1.90	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	15.89		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	75				Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of coal, mudstone and sandstone.
	0.70	D					
	0.90	HVP	92				
	1.10	ES					
	1.50	HVP	89				
	1.80	HVP	96				
				1.90	14.29		End of Pit at 1.90m

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Trial Pit Photographs



Trial Pit 111



Trial Pit 111 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

			TrialPit No TP112 Sheet 1 of 1
Project Name: Peel Hall	Project No. 15740	Co-ords: 361928.89 - 391701.61 Level: 15.68	Date 21/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 1.40	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	15.38		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	1.00	ES					Brown slightly clayey fine to medium SAND. (Running sand identified at 1.30m bgl)
	1.20	B					
				1.40	14.28		End of Pit at 1.40m

Trial Pit Photographs



Trial Pit 112



Trial Pit 112 Spoil

Remarks: 1. Terminated due to instability. 2. Collapsed to a depth of 1.40m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP113
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361811.30 - 391633.41 Level: 12.86	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.25	12.61		MADE GROUND: Dark brown slightly clayey fine to medium SAND with frequent rootlets. (Reworked Topsoil).
	0.50	HVP	52	0.80	12.06		MADE GROUND: Brown mottled grey very sandy CLAY. (Land drain 0.65m bgl). (Reworked CLAY).
	1.20	HVP	65				Firm medium strength light grey very sandy CLAY with frequent lenses of fine to medium SAND.
1.70	1.80	HVP	63				
	2.00	D					
	2.00	HVP	66	2.20	10.66		End of Pit at 2.20m

1 2 3 4

Trial Pit Photographs



Trial Pit 113



Trial Pit 113 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.70m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP114
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361864.71 - 391571.72 Level: 13.07	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.20 x 0.60 Depth 2.30	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	12.82		Dark brown very sandy CLAY with frequent rootlets. (TOPSOIL).
	0.60	ES					Light brown slightly silty very clayey fine to medium SAND.
▼ 1.20				0.90	12.17		Light grey clayey fine to medium SAND. (Running sand identified from 1.20m bgl).
				2.30	10.77		End of Pit at 2.30m

Trial Pit Photographs



Trial Pit 114



Trial Pit 114 Spoil

Remarks: 1. Complete. 2. Running sand identified at 1.20m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP115
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361557.60 - 391630.96 Level: 10.48	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.50 x 0.60 Depth 1.75	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.18		MADE GROUND: Very dark brown slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine subangular to subrounded of sandstone and rare fragments of brick. (Topsoil).
▼ 0.70							Light greyish brown clayey fine to medium SAND. (Running sand identified at 1.10m bgl).
▼ 1.10							
	1.40	ES		1.30	9.18		Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone , mudstone, and coal.
	1.50	HVP	53				
	1.70	HVP	59	1.75	8.73		End of Pit at 1.75m

1 2 3 4

Trial Pit Photographs



Trial Pit 115



Trial Pit 115 Spoil

Remarks: 1. Terminated due to instability. 2. Water strike encountered at 0.70m bgl - moderate ingress. 3. Running sand identified at 1.10m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP116
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361534.99 - 391541.10 Level: 10.19	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.60 Depth 2.30	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	9.99		Very dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
0.50							Light greyish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone and mudstone.
	1.20	B		1.10	9.09		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel fine to coarse subangular to subrounded of sandstone and mudstone.
	1.70	ES					
				2.30	7.89		End of Pit at 2.30m

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Trial Pit Photographs



Trial Pit 116



Trial Pit 116 Spoil

Remarks: 1. Complete 2. Water strike encountered at 0.50m bgl - seepage. 3. Unstable from 0.90m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP117
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361521.99 - 391452.70 Level: 10.14	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.15 x 0.60 Depth 2.40	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	9.94		Very dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
▼ 0.60							Greyish brown slightly gravelly clayey fine to medium SAND.
				1.00	9.14		
	1.20	HVP	85				Stiff high strength brown slightly gravelly sandy CLAY with rare cobbles. Gravel is fine subangular to subrounded of sandstone and mudstone. Cobbles are subangular of sandstone.
	1.50	HVP	92				
	1.70	HVP	92				
▼ 1.90				1.80	8.34		Reddish brown clayey fine to medium SAND.
				2.40	7.74		End of Pit at 2.40m

1 2 3 4

Trial Pit Photographs



Trial Pit 117



Trial Pit 117 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.90m bgl - slow ingress. 3. Unstable between 0.40-1.00m bgl. Seepage at 0.60m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP118
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361471.62 - 391527.27 Level: 10.40	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	10.20		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				0.50	9.90		Light greyish brown clayey fine to medium SAND with rare gravel of mudstone.
	0.80	D					Firm medium strength greyish brown slightly gravelly very sandy CLAY. Gravel is fine subangular to subrounded of mudstone, sandstone, and coal. Circa 1.60m bgl becomes stiff high strength.
	1.00	HVP	69				
1.60	1.60	HVP	84				
	1.90	ES		1.80	8.60		Reddish purple clayey fine to medium SAND.
				2.20	8.20		End of Pit at 2.20m

Trial Pit Photographs



Trial Pit 118



Trial Pit 118 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.60m bgl - seepage. 3. Eastern wall unstable.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP119
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361384.83 - 391485.97 Level: 10.54	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.20 x 0.80 Depth 2.25	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.24		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	70				Firm medium strength grey mottled brown very sandy CLAY. Circa 0.80m bgl. becomes stiff high strength.
	0.80	HVP	90				
▼ 1.40	1.40	HVP	92				
	1.90	HVP	92				
				2.10	8.44		Reddish brown clayey fine to medium SAND.
				2.25	8.29		End of Pit at 2.25m

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Trial Pit Photographs



Trial Pit 119



Trial Pit 119 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.40m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP120
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361383.04 - 391566.35 Level: 10.58	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.90 x 0.60 Depth 2.30	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	10.33		MADE GROUND: Dark brown clayey fine to medium sand with frequent rootlets. (Reworked Topsoil).
0.60							MADE GROUND: Light grey clayey fine to medium sand. (Land drain 0.60m bgl).
0.90				0.90	9.68		Firm medium strength light brownish grey sandy CLAY.
	1.10 1.20	HVP ES	56				
	1.40	HVP	59	1.50	9.08		Reddish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
				2.30	8.28		End of Pit at 2.30m

Trial Pit Photographs



Trial Pit 120



Trial Pit 120 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.60 - land drain, slow ingress and at 0.90m bgl - moderate ingress. 3. Running sand identified at 0.90m bgl. 4. Unstable from 0.50m bgl. 5. Trial pit collapsed to 1.50m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP121
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361409.50 - 391648.66 Level: 10.58	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 2.05	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES		0.40	10.18		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.50	HVP	61				Firm medium strength brown slightly sandy slightly gravelly CLAY with rare lenses of medium to coarse mudstone gravel. Gravel is fine subangular to subrounded of mudstone, sandstone, and coal. Circa 1.00m bgl becomes stiff high strength.
▼ 1.10	1.00	HVP	86				
	1.40	HVP	96				
	1.80	HVP	112				
				2.05	8.53		End of Pit at 2.05m

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Trial Pit Photographs



Trial Pit 121



Trial Pit 121 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.10m bgl - slow ingress.

Stability: Stable.

Trial Pit Log

TrialPit No: TP122
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361372.63 - 391693.44 Level: 10.52	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.15	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	10.32		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.40	B					Greyish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subrounded of mudstone and sandstone.
				0.70	9.82		
	1.00	HVP	77				Stiff high strength grey slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone, sandstone and coal.
	1.50	ES					
	1.50	HVP	96				
▼ 1.80	1.80	HVP	113				
	2.00	HVP	109				
				2.15	8.37		End of Pit at 2.15m

Trial Pit Photographs



Trial Pit 122



Trial Pit 122 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.80m bgl - moderate ingress.

Stability: Stable.

Trial Pit Log

TrialPit No: TP123
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361355.05 - 391766.31 Level: 10.58	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.40 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	10.23		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
▼ 0.80	0.70	ES		0.80	9.78		Greyish brown slightly gravelly clayey fine to medium SAND. Gravel is fine subrounded of mudstone and sandstone.
	1.00	HVP	85				Stiff high strength slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
	1.40	HVP	107				
▼ 1.85	1.80	HVP	100				
				2.00	8.58		End of Pit at 2.00m

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Trial Pit Photographs



Trial Pit 123



Trial Pit 123 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.80m bgl - perched above the CLAY and at 1.85m bgl - slow ingress.

Stability: Stable.

Trial Pit Log

TrialPit No: TP124
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361429.98 - 391785.02 Level: 10.57	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.30 x 0.60 Depth 2.20	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.27		MADE GROUND: Dark brown clayey fine to medium sand with frequent rootlets. (Reworked Topsoil).
▼ 0.70							Greyish brown clayey fine to medium SAND. (Land drain 0.70m bgl). (Running sand identified at 1.50m bgl).
				1.20	9.37		
▼ 1.50	1.40	HVP	90				Stiff high strength slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
	1.80	HVP	113				
				2.20	8.37		End of Pit at 2.20m

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Trial Pit Photographs



Trial Pit 124



Trial Pit 124 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.70m bgl - land drain, seepage. 3. Running sand identified at 1.50m bgl. 4. Unstable from 0.45m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP125
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361432.28 - 391547.65 Level: 10.54	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	10.19		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				0.80	9.74		Greyish brown clayey fine to medium SAND.
	1.00	HVP	75				Stiff high strength grey mottled brown slightly gravelly very sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone and sandstone.
▼ 1.40	1.30	ES		1.40	9.14		Reddish brown slightly clayey fine to medium SAND.
				2.00	8.54		End of Pit at 2.00m

Trial Pit Photographs



Trial Pit 125



Trial Pit 125 Spoil

Remarks: 1. Complete. 2. Water strike at 1.40m bgl - perched above the CLAY - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP126
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361473.92 - 391594.35 Level: 10.42	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.60 x 0.60 Depth 2.25	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.15	ES		0.30	10.12		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				1.20	9.22		Light grey slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone and mudstone.
				1.40	9.02		Very stiff brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of sandstone.
				2.25	8.17		Reddish brown slightly clayey fine to medium SAND.
							End of Pit at 2.25m

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Trial Pit Photographs



Trial Pit 126



Trial Pit 126 Spoil

Remarks: 1. Complete. 2. Unstable from 0.45m bgl.

Stability: Unstable.

Trial Pit Log

			TrialPit No TP127 Sheet 1 of 1
Project Name: Peel Hall	Project No. 15740	Co-ords: 361279.40 - 391680.83 Level: 10.56	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.60 Depth 1.95	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
				0.30	10.26		
	0.50	HVP	66				Firm medium strength grey slightly sandy slightly gravelly CLAY with occasional lenses of red fine to medium SAND. Gravel is fine subangular to subrounded of sandstone and mudstone. Circa 1.00m bgl becomes stiff high strength.
	0.90	ES					
	1.00	HVP	83				
	1.50	HVP	88				
	1.80	HVP	95				
				1.95	8.61		End of Pit at 1.95m

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Trial Pit Photographs



Trial Pit 127



Trial Pit 127 Spoil

Remarks: 1.Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP128
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361325.62 - 391613.71 Level: 10.88	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.90 x 0.60 Depth 2.05	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	10.58		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	79				Stiff high strength grey mottled brown CLAY.
	0.90	HVP	92				
	1.40	HVP	85				
▼ 1.95	1.80	HVP	94	2.05	8.83		End of Pit at 2.05m

Trial Pit Photographs



Trial Pit 128



Trial Pit 128 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.95m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP129
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361295.12 - 391531.52 Level: 10.76	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.60 × 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.46		Light grey slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
0.60	0.60	HVP	79				Stiff high strength grey mottled brown slightly sandy CLAY.
	1.20	ES					
	1.30	HVP	85				
1.65	1.50	HVP	92				
				1.80	8.96		End of Pit at 1.80m

Trial Pit Photographs



Trial Pit 129



Trial Pit 129 Spoil

Remarks: 1. Complete. 2. Water strike (seepage) encountered at 0.60m bgl and 1.65m bgl. 3. 0.00-0.30m bgl encountered as saturated.

Stability: Stable.

Trial Pit Log

TrialPit No: TP130
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361196.94 - 391544.44 Level: 10.68	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.10 x 0.60 Depth 1.85	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	10.48		MADE GROUND: Dark brown sandy clay with frequent rootlets. (Reworked Topsoil).
	0.50	HVP	107				MADE GROUND: Firm brown slightly sandy clay. (Land drain 0.40m bgl). (Reworked Clay).
				0.70	9.98		
	1.00	D					Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of sandstone, mudstone, and coal.
	1.50	ES					
				1.85	8.83		End of Pit at 1.85m

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Trial Pit Photographs



Trial Pit 130



Trial Pit 130 Spoil

Remarks: 1. Complete. 2. CLAY too friable to complete Hand Shear Vane test.

Stability: Stable.

Trial Pit Log

TrialPit No: TP131
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361194.95 - 391595.64 Level: 10.99	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.90 x 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	10.84		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
	0.40	HVP	116				Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of sandstone, mudstone, and coal.
	0.90	HVP	118				
	1.20	HVP	113				
				1.80	9.19		End of Pit at 1.80m

Trial Pit Photographs



Trial Pit 131



Trial Pit 131 Spoil

Remarks: 1. Complete. 2. Beyond 1.40m bgl CLAY became to friable to complete Hand Shear Vane test.

Stability: Stable.

Trial Pit Log

TrialPit No: TP132
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361276.57 - 391583.22 Level: 11.05	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	10.70		MADE GROUND: Dark brown sandy clay with frequent rootlets. (Topsoil).
0.40				0.40	10.65		MADE GROUND: Grey mottled brown slightly sandy clay. (Land drain at 0.40m bgl).
	0.60	HVP	83				Stiff high strength grey mottled brown slightly sandy CLAY.
	0.75	ES					
	1.00	HVP	101				
	1.40	HVP	126				
	1.90	HVP	140				
				2.00	9.05		End of Pit at 2.00m

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Trial Pit Photographs



Trial Pit 132



Trial Pit 132 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.40m bgl - land drain, slow ingress.

Stability: Stable.

Trial Pit Log

TrialPit No: TP133
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361262.38 - 391643.01 Level: 10.74	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 2.05	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.25	10.49		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
				0.50	10.24		Brown clayey fine to medium SAND.
	0.70	HVP	83				Stiff high strength brown mottled grey slightly sandy CLAY.
	1.30	HVP	106				
	1.70	HVP	118				
	2.00	HVP	126	2.05	8.69		End of Pit at 2.05m

Trial Pit Photographs



Trial Pit 133



Trial Pit 133 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP134
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361045.93 - 391781.58 Level: 11.15	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 1.90	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	10.95		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	83				Stiff high strength grey mottled brown slightly sandy CLAY.
1.10	1.00	ES					
	1.10	HVP	114				
	1.40	HVP	116				
	1.80	HVP	120				
				1.90	9.25		End of Pit at 1.90m

Trial Pit Photographs



Trial Pit 134



Trial Pit 134 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.10m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP135
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361072.74 - 391666.66 Level: 10.54	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	10.34		MADE GROUND: Dark brown sandy clay with frequent rootlets (Reworked Topsoil).
▼ 0.40	0.40	HVP	57				MADE GROUND: Firm dark brown slightly sandy clay. (Land drain 0.40m bgl).
				0.60	9.94		
▼ 0.80	0.90	HVP	64				Firm medium strength grey CLAY.
	1.20	D					
	1.40	HVP	70				
	2.00	HVP	60				
				2.10	8.44		End of Pit at 2.10m

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Trial Pit Photographs



Trial Pit 135



Trial Pit 135 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.40m bgl - land drain, moderate ingress and at 0.80m bgl - fast ingress with an organic odour.

Stability: Stable.

Trial Pit Log

TrialPit No: TP136
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361098.94 - 391616.85 Level: 11.20	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.90		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
	0.60	HVP	94				Stiff high strength brown slightly sandy CLAY.
	0.80	ES					
	1.20	HVP	101				
	1.40	HVP	99				
	1.70	HVP	97				
				2.00	9.20		End of Pit at 2.00m

Trial Pit Photographs



Trial Pit 136



Trial Pit 136 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP137
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361148.67 - 391586.76 Level: 11.06	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.10 x 0.60, Depth 1.70	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.15	10.90		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
	0.40	HVP	96				Stiff high strength brown slightly sandy CLAY.
	0.90	HVP	100				
	1.30	HVP	103				
	1.60	HVP	107				
				1.70	9.36		End of Pit at 1.70m

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Trial Pit Photographs



Trial Pit 137



Trial Pit 137 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP138
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361142.76 - 391679.79 Level: 11.12	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 1.75	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	10.92		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50 0.60 0.60	HVP D ES	96				Stiff high strength brown mottled grey slightly sandy CLAY.
	1.00	HVP	112				
	1.50	HVP	144				
				1.75	9.37		End of Pit at 1.75m

Trial Pit Photographs



Trial Pit 138



Trial Pit 138 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP139
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361251.20 - 391489.04 Level: 10.56	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.25	10.30		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.45	D		0.50	10.06		Firm light grey very sandy CLAY.
	0.80	HVP	79				Stiff high strength brown mottled grey slightly sandy slightly gravelly CLAY with occasional lenses of brown fine to medium sand. Gravel is fine subangular to subrounded of mudstone, coal, and sandstone.
	1.20	HVP	85				
	1.70	HVP	86				
				2.10	8.46		End of Pit at 2.10m

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Trial Pit Photographs



Trial Pit 139



Trial Pit 139 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP140
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361148.82 - 391473.71 Level: 9.63	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.90 × 0.60 Depth 2.40	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	9.23		Dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine subrounded of mudstone. (TOPSOIL).
	0.80	D		1.30	8.33		Stiff brown slightly mottled grey slightly gravelly very sandy CLAY. Gravel is fine to medium subrounded of mudstone and sandstone.
	1.60	ES					Reddish brown slightly gravelly clayey fine to medium SAND. Gravel is fine subangular to subrounded of sandstone.
	2.00	B					
▼ 2.30				2.40	7.23		End of Pit at 2.40m

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Trial Pit Photographs



Trial Pit 140



Trial Pit 140 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 2.30m bgl - seepage. 3. Running sand identified at 2.30m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP141
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360524.04 - 391776.73 Level: 14.26	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.10 x 0.60 Depth 2.40	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	13.96		Dark brown slightly gravelly clayey fine to medium SAND with frequent rootlets. Gravel is fine subangular to subrounded of sandstone. (TOPSOIL).
							Brown slightly clayey fine to medium SAND.
	1.50	B					
2.10							
				2.40	11.86		End of Pit at 2.40m

Trial Pit Photographs



Trial Pit 141



Trial Pit 141 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 2.10m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP142
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360641.23 - 391696.27 Level: 10.83	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	10.53		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.70	B		1.10	9.73		Light greyish brown slightly clayey fine to medium SAND.
	1.40	HVP	73				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone and sandstone. Circa 1.80m bgl becomes stiff high strength.
	1.80	HVP	100	2.00	8.83		End of Pit at 2.00m

Trial Pit Photographs



Trial Pit 142



Trial Pit 142 Spoil

Remarks: 1. Terminated due to instability. 2. Unstable from 0.40m bgl. 3. Trial pit collapsed to a depth of 1.60m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP143
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360837.22 - 391749.70 Level: 10.10	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.20 x 0.60 Depth 1.90	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	9.80		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	1.80	ES		1.90	8.20		Light greyish brown slightly clayey fine to medium SAND.
							End of Pit at 1.90m

Trial Pit Photographs



Trial Pit 143



Trial Pit 143 Spoil

Remarks: 1. Terminated due to instability. 2. Unstable from 0.40m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP144
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360750.56 - 391864.58 Level: 12.24	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.30 x 0.60 Depth 2.20	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	11.94		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
							Light greyish brown slightly clayey fine to medium SAND.
	1.30	D		1.10	11.14		
	1.40	HVP	69				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone. Circa 1.90m bgl becomes stiff high strength.
	1.90	HVP	110				
				2.20	10.04		End of Pit at 2.20m

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Trial Pit Photographs



Trial Pit 144



Trial Pit 144 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP145
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360863.55 - 391866.81 Level: 10.93	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	10.68		Dark brown very clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				1.10	9.83		Light grey slightly clayey fine to medium SAND.
	1.40 1.50	HVP ES	110	1.70	9.23		Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
							End of Pit at 1.70m

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Trial Pit Photographs



Trial Pit 145



Trial Pit 145 Spoil

Remarks: 1. Terminated due to instability. 2. Unstable from 0.35m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP146
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360941.58 - 391824.48 Level: 10.34	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.60 Depth 1.75	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.04		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
1.45							Light brownish grey clayey fine to medium SAND. (Running sand identified at 1.45m bgl).
	1.70	HVP	81	1.60 1.75	8.74 8.59		Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone. End of Pit at 1.75m

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Trial Pit Photographs



Trial Pit 146 Spoil



Trial Pit 146 Spoil

Remarks: 1. Terminated due to instability. 2. Running sand identified at 1.45m bgl. 3. Unstable from 0.35m bgl.

Stability: Unstable.

Trial Pit Log

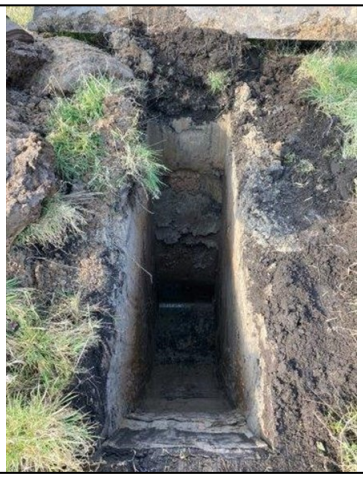
TrialPit No: TP147
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360954.70 - 391768.69 Level: 10.36	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.30 x 0.60 Depth 2.40	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.06		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.50	B		0.75	9.61		Light brownish grey slightly clayey fine to medium SAND.
	0.90	ES					Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone. Circa 1.70m bgl becomes stiff high strength.
	1.20	HVP	62				
▼ 1.80	1.70	HVP	83				
	2.00	HVP	83				
	2.30	HVP	94	2.40	7.96		End of Pit at 2.40m

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Trial Pit Photographs



TP147



TP147 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.80m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP148
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360976.68 - 391718.67 Level: 10.33	Date 24/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.60 Depth 2.50	Scale 1:30
Client: Satnam Group			Logged G. CALVERT

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.02		Very dark brown sandy CLAY with frequent root and rootlets. (TOPSOIL).
	0.60	HVP	83				Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
1.25				1.20	9.12		
	1.40	HVP	16				Very soft very low strength dark grey CLAY with frequent organic matter. (Suspected infilled pond).
	1.60	D					
	1.80	ES					
	1.80	HVP	15				
				2.50	7.82		End of Pit at 2.50m

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Trial Pit Photographs



Trial Pit 148



Trial Pit 148 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.25m bgl - slow ingress. 3. CLAY becomes too soft to complete Hand Shear Vane tests beyond 1.50m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP201
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361907.85 - 391754.43 Level: 16.11	Date 21/03/2022
Location: Warrington		Dimensions (m): 1.00 × 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	15.91		MADE GROUND: Dark brown clay with frequent rootlets. (Reworked topsoil).
	0.40	ES					MADE GROUND: Dark brown gravelly clay. Gravel is fine to coarse subangular to subrounded of brick and sandstone.
				0.60	15.51		Stiff high strength brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone.
	1.00	HVP	92				
	1.50	HVP	94				
				1.80	14.31		End of Pit at 1.80m

Trial Pit Photographs



Trial Pit 201



Trial Pit 201 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

			TrialPit No TP202 Sheet 1 of 1
Project Name: Peel Hall	Project No. 15740	Co-ords: 361850.02 - 391692.27 Level: 14.60	Date 21/03/2022
Location: Warrington		Dimensions (m): Depth 1.60 (1.00 × 0.60)	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	14.30		Dark brown sandy CLAY with frequent rootlets (TOPSOIL.
	0.60	ES					Stiff high strength brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
	1.00	HVP	111				
	1.50	HVP	102				
				1.60	13.00		End of Pit at 1.60m

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Trial Pit Photographs



Trial Pit 202



Trial Pit 202 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No TP203/ SA105
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361765.53 - 391738.72 Level: 13.81	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.10 x 0.70 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	13.51		Dark brown sandy CLAY with frequent rootlets (TOPSOIL).
				0.60	13.21		Firm dark brown sandy CLAY.
▼ 1.90				2.00	11.81		Brown clayey fine to medium SAND.
							End of Pit at 2.00m

Remarks: 1. Complete. 2. Running sand at 1.90 m bgl. 3. BRE365 Soakaway testing undertaken in trial pit.

Stability: Stable.

Trial Pit Log

TrialPit No: TP204
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361806.02 - 391806.26 Level: 16.28	Date 22/03/2022
Location: Warrington		Dimensions (m): Depth 1.50, 1.00 × 0.60	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	15.98		Dark brown slightly gravelly fine to medium SAND with frequent rootlets. Gravel is fine to medium subangular to subrounded of sandstone (TOPSOIL).
				1.00	15.28		Light brown fine to medium SAND.
				1.50	14.78		Brown fine to medium SAND.
							End of Pit at 1.50m

Trial Pit Photographs



Trial Pit 204



Trial Pit 204 Spoil

Remarks: 1. Terminated due to instability.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP205
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361737.47 - 391815.62 Level: 15.22	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.50 x 0.60 Depth 1.50	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
				0.30	14.92		Brown slightly clayey fine to medium SAND.
				0.50	14.72		Brown fine to medium SAND.
	0.70	B					
▼ 1.40							
				1.50	13.72		End of Pit at 1.50m

Trial Pit Photographs



Trial Pit 205



Trial Pit 205 Spoil

Remarks: 1. Terminated due to instability. 2. Running sand encountered at 1.40m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP206
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361711.68 - 391849.75 Level: 15.25	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.50 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	14.85		Dark brown fine to medium SAND with frequent rootlets. (TOPSOIL).
	1.00	ES					Light brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
1.70				1.70	13.55		End of Pit at 1.70m

Trial Pit Photographs



Trial Pit 206



Trial Pit 206 Spoil

Remarks: 1. Complete. 2. Running sand at 1.70m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP207
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361634.41 - 391696.80 Level: 11.26	Date 22/03/2022
Location: Warrington		Dimensions (m): Depth 1.80 (1.50 × 0.60)	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	11.06		MADE GROUND: Dark brown slightly sandy gravelly clay with frequent rootlets. (Reworked topsoil).
				0.30	10.96		MADE GROUND: Dark brown slightly sandy gravelly clay. Gravel is fine to coarse subangular to subrounded of sandstone and brick with rare fragments of glass.
	0.40	ES					Brown slightly gravelly clayey fine to medium SAND. Gravel is fine to coarse subangular to subrounded of mudstone and sandstone.
▼ 0.90	0.80	ES					
				1.00	10.26		Stiff high strength brown slightly gravely sandy CLAY. Gravel is fine to coarse subangular to subrounded of mudstone and sandstone.
	1.50	HVP	100				
	1.80	HVP	135	1.80	9.46		End of Pit at 1.80m

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Trial Pit Photographs



Trial Pit 207



Trial Pit 207 Spoil

Remarks: 1. Complete. 2. Running sand at 0.90m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP208
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361566.35 - 391748.94 Level: 10.83	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.00 x 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					MADE GROUND: Dark brown slightly sandy clay with frequent rootlets. (Reworked Topsoil).
0.40	0.50	B		0.40	10.43		Light brown fine to medium SAND.
	0.90	ES		0.80	10.03		Stiff brown sandy CLAY.
				2.00	8.83		End of Pit at 2.00m

Trial Pit Photographs



Trial Pit 208



Trial Pit 208 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.40m bgl, land drain - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP209
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362005.18 - 391590.76 Level: 13.85	Date 22/03/2022
Location: Warrington		Dimensions (m): 1.00 × 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.40	13.45		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
	0.80	ES					Brown fine to medium SAND.
1.10				1.80	12.05		End of Pit at 1.80m

Trial Pit Photographs



Trial Pit 209



Trial Pit 209 Spoil

Remarks: 1. Complete. 2. Running sand encountered at 1.10m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP210
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361304.05 - 391725.20 Level: 10.61	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.00 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.40	10.21		Dark brown sandy CLAY with frequent rootlets (TOPSOIL)..
▼ 0.70				0.70	9.91		Light brown slightly clayey fine to medium SAND.
	1.00	HVP	55				Firm medium strength brown sandy CLAY. Circa 1.50m bgl becomes stiff high strength.
	1.50	HVP	89				
				1.70	8.91		End of Pit at 1.70m

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Trial Pit Photographs



Trial Pit 210



Trial Pit 210 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.70m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP211
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361229.03 - 391683.70 Level: 10.41	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.50 × 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.11		MADE GROUND: Dark brown slightly sandy CLAY with frequent rootlets. (Reworked topsoil).
	0.50	ES		0.60	9.81		MADE GROUND: Brown clay with occasional cobbles. Cobbles are subangular to angular of brick.
				1.70	8.71		Stiff brown CLAY.
							End of Pit at 1.70m

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Trial Pit Photographs



Trial Pit 211



Trial Pit 211 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP212
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361199.00 - 391758.52 Level: 10.71	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.50 x 0.60 Depth 1.40	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.41		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	127				Stiff high strength brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
	1.00	HVP	122				
1.40				1.40	9.31		End of Pit at 1.40m

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Trial Pit Photographs



Trial Pit 212



Trial Pit 212 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.40m bgl (seepage). 3. Clay too friable to complete Hand Shear Vane tests after 1.00m bgl.

Stability: Stable.

Trial Pit Log

TrialPit No: TP213
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361160.38 - 391785.66 Level: 10.70	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.50 x 0.60 Depth 1.60	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
	0.40	ES		0.30	10.40		Light brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
				0.50	10.20		Stiff high strength brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse subangular to subrouded of sandstone and mudstone.
	1.00 1.00	B HVP	103				
	1.50	HVP	130				
				1.60	9.10		End of Pit at 1.60m

Trial Pit Photographs



Trial Pit 213



Trial Pit 213 Spoil

Remarks: 1. Complete.

Stability: Stable.

Trial Pit Log

TrialPit No: TP214
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361212.32 - 391813.06 Level: 10.57	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.27		Dark brown fine to medium SAND with frequent rootlets (TOPSOIL).
				0.50	10.07		Light brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
	1.00	HVP	148				Stiff high strength brown CLAY.
	1.50	HVP	160				
1.70				1.70	8.87		End of Pit at 1.70m

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Trial Pit Photographs



Trial Pit 214



Trial Pit 214 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 1.70m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP215
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361287.85 - 391822.59 Level: 10.55	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.50 × 0.60 Depth 1.60	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	10.25		Dark brown fine to coarse SAND with frequent rootlets. (TOPSOIL).
0.50 ▼	0.80	B		1.60	8.95		Light brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
							End of Pit at 1.60m

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Trial Pit Photographs



Trial Pit 215



Trial Pit 215 Spoil

Remarks: 1. Terminated due to instability. 2. Running sand encountered at 0.50m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP216
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361279.74 - 391866.33 Level: 10.43	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.50 × 0.60 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	ES		0.30	10.13		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
▼ 0.70							Light brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
	1.00	HVP	93	0.80	9.63		Stiff high strength brown CLAY.
	1.50	HVP	95				
	2.00	HVP	150	2.00	8.43		End of Pit at 2.00m

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Trial Pit Photographs



Trial Pit 216



Trial Pit 216 Spoil

Remarks: 1. Complete. 2. Running sand encountered at 0.70m bgl.

Stability: Unstable.

Trial Pit Log

TrialPit No: TP217
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361145.12 - 391824.53 Level: 10.46	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	10.16		Dark brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. (TOPSOIL).
	0.50	HVP	130				Stiff high strength brown CLAY.
	1.00	HVP	89				
	1.50	HVP	135				
▼ 1.70				1.70	8.76		End of Pit at 1.70m

Trial Pit Photographs



Trial Pit 217



Trial Pit 217 Spoil

Remarks: 1. Complete. 2. Water encountered in the bottom of the pit at 1.70m bgl - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP218
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361094.50 - 391888.20 Level: 10.76	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 x 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
▼ 0.30	0.20	ES		0.30	10.46		MADE GROUND: Dark brown gravelly clay with frequent rootlets. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. (TOPSOIL).
	1.20	B		1.80	8.96		Stiff brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
							End of Pit at 1.80m

Trial Pit Photographs



Trial Pit 218



Trial Pit 218 Spoil

Remarks: 1. Complete. 2. Water strike encountered at 0.30m bgl, land drain - seepage.

Stability: Stable.

Trial Pit Log

TrialPit No: TP219
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361067.11 - 391769.19 Level: 11.15	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.60 Depth 1.30	Scale 1:30
Client: Satnam Group			Logged H. MASON

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.85		Dark brown CLAY with frequent rootlets. (TOPSOIL).
	0.50 0.50	ES HVP	106				Stiff high strength brown grey mottled CLAY.
	1.00	HVP	127				
				1.30	9.85		End of Pit at 1.30m

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Trial Pit Photographs



Trial Pit 219



Trial Pit 219 Spoil

Remarks: 1. Complete. 2. Slow to excavate through stiff CLAY.

Stability: Stable.

Borehole Log

Borehole No. **WS101**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362070.98 - 391937.54	Hole Type WS
Location: Warrington		Level: 16.52	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	16.22		Dark brown sandy CLAY with frequent rootlets (TOPSOIL).
					0.80	15.72		Brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of brick, coal, and sandstone.
		1.00		N=8 (3,3/2,2,2,2)				Stiff medium strength brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
		1.40	ES					
					1.80	14.72		Brown fine to medium SAND.
		2.00		N=9 (2,3/3,2,2,2)	2.00	14.52		Stiff medium strength brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone. (Becoming firm low strength at circa 4.00m bgl, and then becoming stiff medium strength circa 5.00m bgl).
	▼	3.00		N=11 (2,2/3,3,3,2)				
		4.00		N=9 (3,3/2,3,2,2)				
		5.00		N=12 (3,4/4,3,2,3)				
					5.45	11.07		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 3.00m bgl. 3. Monitoring well installed. 4. Response zone 1.00 m - 4.00 m bgl. 5. Saturated from 3.00m bgl.

Borehole Log

Borehole No. **WS102**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362064.14 - 391822.18	Hole Type WS
Location: Warrington		Level: 17.71	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	17.41		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
								Orange slightly clayey fine to medium SAND.
		1.00		N=9 (2,2/2,2,2,3)	0.90	16.81		Loose orange fine to medium SAND.
					1.20	16.51		Loose brown fine to medium SAND. (Becoming medium dense circa 2.00m bgl).
	▼	2.00		N=11 (4,4/3,4,2,2)				
		3.00		N=15 (4,4/5,3,3,4)				
		4.00		N=16 (4,5/5,4,4,3)				
		5.00		N=14 (3,2/4,4,3,3)				
					5.45	12.26		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 2.00 m bgl. 3. Monitoring well installed. 4. Response zone 0.50 - 3.50 m bgl. 4. Saturated SAND from 2.00m bgl.

Borehole Log

Borehole No. **WS103**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361895.94 - 391832.63	Hole Type WS
Location:	Warrington		Level:	17.76	Scale 1:50
Client:	Satnam Group		Dates:	22/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	17.46		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
								Light brown fine to medium SAND.
		0.90	ES		0.80	16.96		
		1.00		N=12 (1,2/2,3,3,4)				Medium dense brown fine to medium SAND. (Becoming loose circa 2.00m bgl and then becoming medium dense circa 4.00m bgl).
		2.00		N=9 (2,2/2,2,3,2)				
		3.00		N=10 (1,2/2,3,2,3)				
		4.00		N=13 (2,2/3,3,4,3)				
		5.00		N=19 (2,3/4,4,5,6)				
					5.45	12.31		End of borehole at 5.45 m

Remarks

1. Complete. 2. Monitoring well installed. 3. Response zone 1.00 - 3.00 m bgl.

Borehole Log

Borehole No. **WS104**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361988.84 - 391917.51	Hole Type WS
Location:	Warrington		Level:	17.85	Scale 1:50
Client:	Satnam Group		Dates:	23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	17.55		MADE GROUND: Dark brown slightly gravelly clay with frequent rootlets. Gravel is fine to medium subangular to subrounded of brick.
					0.60	17.25		MADE GROUND: Brown gravelly clay. Gravel is fine to coarse subangular to subrounded of brick, sandstone, and mudstone.
		1.00		N=11 (2,2/3,2,3,3)				Medium dense brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
	▼	2.00		N=12 (3,3/2,3,4,3)	2.00	15.85		No return. Assumed to be medium dense brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		3.00		N=11 (4,4/3,2,3,3)	3.00	14.85		Loose brown fine to medium SAND. (Becoming medium dense circa 4.00m bgl).
		4.00		N=22 (4,5/5,4,6,7)				
		5.00		N=20 (5,5/6,5,4,5)				
					5.45	12.40		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 2.00 m bgl. 3. Saturated SAND from 2.00m bgl.

Borehole Log

Borehole No. **WS105**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361821.37 - 391883.87	Hole Type WS
Location:	Warrington		Level:	18.31	Scale 1:50
Client:	Satnam Group		Dates:	22/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.30	18.01		Dark brown fine to medium SAND with frequent rootlets (TOPSOIL).
								Light brown fine to medium SAND.
	▼	1.00		N=7 (1,2/2,2,1,2)	0.80	17.51		Loose brown fine to medium SAND. (Becoming medium dense circa 3.00m bgl).
		2.00		N=10 (1,1/2,2,2,4)				
	▼	3.00		N=19 (1,3/4,4,5,6)				
		4.00		N=23 (4,4/5,5,6,7)				
		5.00		N=27 (4,5/6,6,7,8)				
					5.45	12.86		End of borehole at 5.45 m

Remarks

1. Complete. 2. Monitoring well installed. 3. Response zone 0.50 - 2.50 m bgl. 4. Water strike at 1.00m and 3.00mbgl.

Borehole Log

Borehole No. **WS106**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361705.22 - 391920.83	Hole Type WS
Location:	Warrington		Level:	16.90	Scale 1:50
Client:	Satnam Group		Dates:	22/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	16.60		Dark brown CLAY with frequent rootlets (TOPSOIL).
					0.50	16.40		Dark brown sandy CLAY.
		1.00		N=8 (1,1/2,2,2,2)				Loose light brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone. (Becoming medium dense circa 3.00m bgl).
	▼	2.00		N=8 (1,2/2,2,2,2)				
		3.00		N=12 (2,2/2,3,3,4)				
		4.00		N=15 (2,3/3,3,4,5)				
		5.00		N=22 (4,4/5,6,5,6)				
					5.45	11.45		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike at 2.00m bgl.

Borehole Log

Borehole No. **WS107**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361608.59 - 391722.68	Hole Type WS
Location:	Warrington		Level:	10.99	Scale 1:50
Client:	Satnam Group		Dates:	23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	10.69		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
					0.60	10.39		Grey fine to medium SAND.
		1.00		N=6 (1,2/2,1,2,1)				Firm low strength brown sandy CLAY. (Becoming very stiff high strength circa 2.00m bgl and then becoming very stiff very high strength circa 3.00m bgl).
		2.00		N=17 (2,3/3,4,4,6)				
		3.00		50 (15,10/50 for 95mm)	3.25	7.74		End of borehole at 3.25 m

Remarks

1. Refused in very stiff CLAY. 2. Monitoring well installed. 3. Response zone 1.00 - 3.00m bgl.

Borehole Log

Borehole No. **WS108**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361593.00 - 391657.73	Hole Type WS
Location: Warrington		Level: 10.95	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	10.65		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
		1.00		N=10 (2,3/2,2,3,3)				Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone sandstone and coal.
		2.00		N=12 (3,3/4,2,3,3)	2.00	8.95		Medium dense reddish brown slightly clayey fine to coarse SAND. (Becoming dense circa 3.00m bgl).
		2.40	ES					
		3.00		50 (50 for 75mm/50 for 40mm)	3.12	7.83		End of borehole at 3.12 m

Remarks

1. Refused due to dense SAND at 3.12m bgl.

Borehole Log

Borehole No. **WS109**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361526.88 - 391581.27	Hole Type WS
Location: Warrington		Level: 10.26	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	9.96		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
					0.60	9.66		Light grey slightly clayey fine to medium SAND.
		1.00		N=15 (2,3/4,4,4,3)				Medium dense reddish brown slightly clayey slightly gravelly fine to medium SAND. Gravel is fine to medium of sandstone. (Becoming dense circa 2.60m bgl).
		2.00		N=26 (6,5/6,6,7,7)				
		2.60		50 (50 for 75mm/50 for 75mm)	2.75	7.51		End of borehole at 2.75 m

Remarks

1. Refused due to dense SAND at 2.75m bgl.

Borehole Log

Borehole No. **WS110**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361517.29 - 391502.37	Hole Type WS
Location: Warrington		Level: 10.19	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25	9.94		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
					0.60	9.59		Light brownish grey clayey fine to medium SAND.
	▼	1.00		N=9 (2,2/3,2,2,2)				Loose light brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone. (Becoming medium dense circa 2.00m bgl).
		1.40	ES					
		2.00		N=11 (3,3/2,2,3,4)				
		3.00		50 (12,14/50 for 235mm)	3.00	7.19		Dense reddish brown slightly clayey fine to coarse SAND.
					3.39	6.80		End of borehole at 3.39 m

Remarks

1. Refused due to dense SAND at 3.39m bgl. 2. Water strike encountered at 1.00m bgl. 3. Monitoring well installed. 4. Response zone 0.50 - 2.50m bgl. 4. Saturated SAND at 1.00m and 2.00m bgl.

Borehole Log

Borehole No. **WS111**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361489.62 - 391639.26	Hole Type WS
Location: Warrington		Level: 10.37	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	10.17		Dark brown CLAY with frequent rootlets (TOPSOIL).
								Brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		1.00		N=13 (1,1/3,3,3,4)	1.00	9.37		Medium dense reddish brown fine to medium SAND. (Becoming dense circa 2.00m bgl).
		2.00		50 (4,8/50 for 230mm)				
					2.38	7.99		End of borehole at 2.38 m

Remarks

1. Refused due to dense SAND. 2. Monitoring well installed. 3. Response zone 0.50 - 1.50 m bgl.

Borehole Log

Borehole No. **WS112**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361349.59 - 391671.37	Hole Type WS
Location: Warrington		Level: 10.61	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.30	10.31		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
					0.60	10.01		Light greyish brown slightly clayey fine to medium SAND.
		1.00		N=8 (1,2/2,1,2,3)				Stiff medium strength brown slightly sandy CLAY. (Becoming very stiff high strength circa 2.00m bgl).
	▼	2.00		N=19 (2,3/3,3,4,9)				
		2.70		50 (13,12/50 for 85mm)	2.70	7.91		Dense reddish brown clayey fine to coarse SAND.
					2.94	7.67		End of borehole at 2.94 m

Remarks

1. Refused due to dense SAND at 2.94m bgl. 2. Water strike encountered at 2.00m bgl.

Borehole Log

Borehole No. **WS113**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361366.40 - 391733.91	Hole Type WS
Location:	Warrington		Level:	10.63	Scale 1:50
Client:	Satnam Group		Dates:	23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	10.33		Dark brown fine to medium SAND with frequent rootlets. (TOPSOIL).
					0.60	10.03		Light grey fine to medium SAND.
		1.00		N=6 (1,1/1,1,2,2)				Firm low strength brown slightly gravelly sandy CLAY. Gravel is fine to medium subangular to subrounded of mudstone, sandstone and coal. (Becoming stiff medium strength circa 2.00m bgl).
		2.00		N=15 (1,2/2,3,4,6)				
		2.60		50 (8,12/50 for 165mm)	2.80	7.83		Dense reddish brown slightly clayey fine to coarse SAND.
					2.92	7.71		End of borehole at 2.92 m

Remarks

1. Refused due to dense SAND at 2.92m bgl. 2. Monitoring well installed. 3. Response zone 0.50 - 2.50mbgl.

Borehole Log

Borehole No. **WS114**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361335.01 - 391581.22	Hole Type WS
Location: Warrington		Level: 11.02	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25	10.77		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
		0.80	ES					Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone sandstone and coal. (Becoming very stiff high strength circa 2.00m bgl).
		1.00		N=10 (3,2/3,3,2,2)				
		2.00		N=18 (4,3/4,5,5,4)				
	▼				2.60	8.42		Dense reddish brown slightly clayey fine to coarse SAND.
		3.00		50 (6,9/50 for 230mm)				
					3.38	7.64		End of borehole at 3.38 m

Remarks

1. Refused due to dense SAND at 3.38m bgl. 2. Water strike encountered at 3.00m bgl. 3. Saturated SAND from 3.00m bgl.

Borehole Log

Borehole No. **WS115**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361325.51 - 391507.27	Hole Type WS
Location: Warrington		Level: 10.53	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	10.23		Dark brown slightly sandy CLAY with frequent rootlets (TOPSOIL).
					0.60	9.93		Grey fine to medium SAND.
		1.00		N=8 (1,1/2,2,2,2)				Loose reddish brown slightly clayey fine to coarse SAND. (Becoming dense circa 2.00m bgl).
		1.50	U					
	▼	2.00		50 (5,8/50 for 235mm)				
					2.39	8.14		End of borehole at 2.39 m

Remarks

1. Refused due to dense SAND at 2.39m bgl. 2. Water strike encountered at 2.00m bgl. 3. Saturated SAND from 2.00m bgl.

Borehole Log

Borehole No. **WS116**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361150.74 - 391883.46	Hole Type WS
Location: Warrington		Level: 10.60	Scale 1:50
Client: Satnam Group		Dates: 25/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	10.30		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
								Light brownish grey clayey fine to medium SAND.
		1.00		N=12 (1,2/2,3,3,4)	0.90	9.70		Stiff medium strength brown mottled grey CLAY.
		1.20	ES					
		2.00		N=10 (2,2/2,3,2,3)	2.10	8.50		Stiff medium strength brown slightly sandy very gravelly CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone. (Becoming firm low strength circa 3.00m bgl and then becoming very stiff very high strength circa 4.00m bgl).
		3.00		N=9 (1,1/2,2,2,3)				
	▼	4.00		N=48 (5,9/14,15,10,9)				
					4.40	6.20		Brown clayey fine to medium SAND.
					4.50	6.10		Very stiff very high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
		4.80		50 (25 for 20mm/50 for 225mm)				
					5.10	5.50		End of borehole at 5.10 m

Remarks

1. Refused due to sandstone cobble at 5.10m bgl. 2. Water strike encountered at 4.20m bgl. 3. Monitoring well installed. 4. Response zone 0.50m bgl - 4.50m bgl. 5. Saturated from 4.00m bgl.

Borehole Log

Borehole No. **WS117**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361131.22 - 391782.57	Hole Type WS
Location: Warrington		Level: 10.55	Scale 1:50
Client: Satnam Group		Dates: 25/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.35	10.20		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
		0.50	U					Firm low strength dark brown mottled grey slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone. Circa 2.00m bgl becomes stiff medium strength.
		1.00		N=7 (1,1/1,2,2,2)				
		2.00		N=9 (1,2/2,2,2,3)	2.30	8.25		Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone. (Becoming very stiff very high strength circa 4.00m bgl).
		3.00		N=16 (3,2/3,3,5,5)				
		4.00		N=50 (5,6/8,11,16,15)	4.45	6.10		End of borehole at 4.45 m

Remarks

1. Refused due to sandstone cobble at 4.45m bgl. 2. Water strike encountered at 3.20m bgl. 3. Monitoring well installed. 4. Response zone 2.00m - 4.00m bgl. 5. Saturated from 3.00m bgl.

Borehole Log

Borehole No. **WS118**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361129.72 - 391725.10	Hole Type WS
Location: Warrington		Level: 11.03	Scale 1:50
Client: Satnam Group		Dates: 25/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	10.73		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
					0.80	10.23		Brown mottled grey CLAY.
		1.00		N=13 (2,2/3,3,3,4)				Stiff medium strength brown mottled grey slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone. (Becoming very stiff very high strength circa 4.00m bgl).
		1.60	ES					
		2.00		N=12 (2,2/2,3,3,4)				
		3.00		N=14 (1,2/3,3,4,4)				
		4.00		50 (4,10/50 for 290mm)				
					4.44	6.59		End of borehole at 4.44 m

Remarks

1. Refused due to very stiff CLAY or possible sandstone cobble.

Borehole Log

Borehole No. **WS119**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361151.63 - 391628.98	Hole Type WS
Location: Warrington		Level: 10.97	Scale 1:50
Client: Satnam Group		Dates: 25/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.20	10.77		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
		1.00		N=15 (2,2/3,4,4,4)				Very stiff high strength brown mottled grey slightly sandy CLAY.
		1.50	ES					
		2.00		N=23 (3,4/4,5,6,8)	1.80	9.17		Very stiff high strength brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine subangular of mudstone and sandstone. (Becoming very stiff very high strength circa 4.00m bgl).
		3.00		N=27 (7,6/8,5,6,8)				
		4.00		50 (7,10/50 for 160mm)	4.31	6.66		End of borehole at 4.31 m

Remarks

1. Refused due to dense SAND at 4.31m bgl. 2. Monitoring well installed. 3. Response zone 2.00m - 4.00m bgl.

Borehole Log

Borehole No. **WS120**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360517.57 - 391783.05	Hole Type WS
Location: Warrington		Level: 14.72	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	14.42		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
		1.00		N=8 (2,2/2,2,2,2)	0.90	13.82		Brown fine to medium SAND.
		1.30	ES					Loose light brownish grey clayey fine to medium SAND. (Becoming medium dense circa 2.00m bgl).
	▼	2.00		N=19 (2,3/3,4,5,7)				
	▼	3.00		N=16 (3,3/3,4,5,4)	2.80	11.92		Brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
					3.20	11.52		Medium dense light brownish grey clayey fine to medium SAND.
		4.00		50 (5,9/50 for 155mm)	3.70	11.02		Very stiff very high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
					4.31	10.41		End of borehole at 4.31 m

Remarks

1. Refused due to very stiff CLAY at 4.31m bgl. 2. Water strike encountered at 2.00m bgl and 3.00m bgl. 3. Well collapsed to 2.50m bgl. 4. Monitoring well installed. 5. Response zone 0.50m - 2.50m bgl. 6. Saturated SAND at 3.20-3.70m bgl.

Borehole Log

Borehole No. **WS121**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360698.80 - 391710.90	Hole Type WS
Location: Warrington		Level: 10.96	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES					MADE GROUND: Black slightly sandy gravel with rare rootlets. Gravel is fine of mudstone and sandstone with fragments of asphalt, clinker and ash.
					0.40	10.56		
					0.55	10.41		Dark brown very sandy CLAY.
		1.00		N=9 (2,1/2,2,2,3)				Loose light brownish grey clayey fine to medium SAND.
	▼	2.00		N=5 (2,2/1,1,1,2)				
					2.80	8.16		Brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
		3.00		N=16 (2,3/3,4,4,5)	3.10	7.86		Medium dense brown slightly clayey fine to medium SAND.
		4.00		N=7 (1,1/1,2,2,2)	4.00	6.96		No return. Assumed to be loose brown slightly clayey fine to medium SAND. (Becoming medium dense circa 5.00m bgl).
		5.00		N=17 (3,3/3,4,4,6)				
					5.45	5.51		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 2.00 m bgl. 3. Well collapsed to 2.00m bgl. 4. Monitoring well installed. 5. Response zone 1.00m - 2.00m bgl.

Borehole Log

Borehole No. **WS122**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360919.94 - 391867.38	Hole Type WS
Location: Warrington		Level: 10.64	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.35	10.29		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
		0.80	ES					Loose light grey slightly clayey fine to medium SAND.
		1.00		N=6 (2,2/2,1,1,2)				
		2.00		N=12 (2,2/2,3,3,4)	2.00	8.64		Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular of sandstone and mudstone. (Becoming very stiff, very high strength circa 4.00m bgl).
		2.50	U					
		3.00		N=13 (2,2/3,3,3,4)				
		4.00		N=50 (7,11/11,11,11,17)				
					4.45	6.19		End of borehole at 4.45 m

Remarks

1. Refused due to very stiff CLAY. 2. Water strike encountered at 1.80m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 4.00m bgl.

Borehole Log

Borehole No. **WS123**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361068.35 - 391716.35	Hole Type WS
Location: Warrington		Level: 10.20	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES					Grey mottled brown slightly gravelly sandy CLAY with occasional pockets of organic matter. Gravel is fine subangular of sandstone.
		1.00		N=4 (1,1/1,1,1,1)	1.10	9.10		
		1.50	ES					Firm low strength grey CLAY with rare organic matter.
		2.00		N=5 (0,0/1,1,1,2)				
					2.30	7.90		Very stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone. (Becoming very stiff very high strength circa 3.80m bgl).
	▼	3.00		N=33 (3,3/5,5,13,10)				
		3.80		50 (11,10/50 for 230mm)				
					4.18	6.02		End of borehole at 4.18 m

Remarks

1. Refused due to very stiff CLAY at 4.18m bgl. 2. Water strike encountered at 3.00m bgl. 3. Monitoring well installed. 4. Response zone 1.00-4.00m bgl.

Borehole Log

Borehole No. **WS201**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	362318.18 - 391664.59	Hole Type WS
Location:	Warrington		Level:	15.48	Scale 1:50
Client:	Satnam Group		Dates:	21/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.50	14.98		Dark brown sandy CLAY with frequent rootlets (TOPSOIL).
	▼	0.80	ES					Orangey brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		1.00		N=11 (2,2/3,2,3,3)	1.10	14.38		Medium dense brown fine to medium SAND. (Circa 2.00m bgl becomes loose).
		2.00		N=10 (1,2/2,3,2,3)				
		3.00		N=11 (2,3/3,3,3,2)	2.60	12.88		Loose brown slightly clayey fine to medium SAND.
		4.00		N=13 (2,2/2,3,3,5)	3.60	11.88		Brown sandy CLAY.
		5.00		N=19 (3,3/4,5,5,5)	4.00	11.48		Medium dense brown fine to medium SAND.
					5.45	10.03		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 1.00 m bgl.

Borehole Log

Borehole No. **WS202**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362314.07 - 391743.22	Hole Type WS
Location: Warrington		Level: 16.17	Scale 1:50
Client: Satnam Group		Dates: 21/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	15.96		Dark brown CLAY with frequent rootlets (TOPSOIL).
		0.60	ES					Firm brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone.
		1.00		N=13 (2,3/3,3,3,4)	0.80	15.36		Stiff medium strength brown grey mottled gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone, coal, and mudstone. (Becoming very stiff high strength circa 2.00 m bgl).
		2.00		N=29 (3,6/5,6,7,11)				
	▼	3.00		N=17 (3,3/5,4,4,4)	3.10	13.06		Medium dense brown slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular to subrounded of sandstone. (Becoming dense circa 5.00 m bgl).
		4.00		N=35 (4,6/10,9,8,8)				
		5.00		N=57 (4,6/9,11,13,24)				
					5.45	10.72		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 3.00m bgl. 3. Monitoring well installed. 4. Response zone 2.00m - 4.00 m bgl. 5. SAND saturated from 3.10m - 5.45m bgl.

Borehole Log

Borehole No. **WS203**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362129.91 - 391742.24	Hole Type WS
Location: Warrington		Level: 15.68	Scale 1:50
Client: Satnam Group		Dates: 21/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	15.48		Dark brown gravelly CLAY with frequent rootlets (TOPSOIL).
		0.70	ES					Very stiff high strength brown mottled grey slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
		1.00		N=15 (4,3/3,4,5,3)				
		2.00		N=17 (4,4/3,5,5,4)	2.00	13.68		
					2.20	13.48		Brown gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, coal, and mudstone.
		2.70		N=55 (7,8/12,13,17,13)				Medium dense brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. (Becoming dense circa 2.70m bgl).
					3.15	12.53		End of borehole at 3.15 m

Remarks

1. Refused on cobble of sandstone. 2. Monitoring well installed. 3. Response zone 1.00m - 2.50m bgl.

Borehole Log

Borehole No. **WS204**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362224.42 - 391683.16	Hole Type WS
Location: Warrington		Level: 14.76	Scale 1:50
Client: Satnam Group		Dates: 21/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	14.56		Dark brown CLAY with frequent rootlets (TOPSOIL).
		1.00		N=13 (3,3/2,4,4,3)				Stiff medium strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and coal.
		1.10	ES					
		2.00		N=13 (2,3/3,4,3,3)	2.20	12.56		Stiff medium strength dark brown slightly gravelly CLAY with pockets of organic material. Gravel is fine to coarse subangular to subrounded of coal, and sandstone.
		3.00		N=14 (3,4/4,3,3,4)	3.30	11.46		Stiff medium strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and coal.
		4.00		N=15 (4,4/3,3,4,5)	4.00	10.76		Medium dense dark brown fine to medium SAND.
		5.00		N=18 (3,5/4,4,5,5)				
					5.45	9.31		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 3.00 m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 5.00m bgl. 5. Saturated from 3.00m bgl.

Borehole Log

Borehole No. **WS205**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362052.11 - 391735.55	Hole Type WS
Location: Warrington		Level: 16.76	Scale 1:50
Client: Satnam Group		Dates: 22/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.35	16.41		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
		1.00		N=9 (3,2/2,2,3,2)				Loose light brown slightly clayey fine to medium SAND.
		2.00		N=9 (2,2/2,3,2,2)	2.40	14.36		Brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone, sandstone and coal.
		3.00		N=10 (3,3/2,2,3,3)	3.20	13.56		Loose brown slightly clayey fine to medium SAND.
	▼	4.00		N=8 (3,3/2,2,2,2)				
		5.00		N=11 (3,4/4,3,2,2)	5.45	11.31		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 4.00m bgl. 3. Saturated SAND from 4.00m bgl.

Borehole Log

Borehole No. **WS206**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	362033.81 - 391644.15	Hole Type WS
Location:	Warrington		Level:	15.04	Scale 1:50
Client:	Satnam Group		Dates:	28/03/2022 -	Logged By H. MORGAN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.40	14.64		Dark brown gravelly very sandy CLAY. Gravel is fine to medium subangular to rounded of sandstone and mudstone. (TOPSOIL)
		1.00		N=9 (1,2/2,2,2,3)	1.20	13.84		Loose orangey brown fine to medium SAND.
	▼	2.00		N=8 (2,1/2,2,2,2)	2.50	12.54		Loose brown fine to medium SAND.
		3.00		N=6 (1,2/1,1,2,2)	3.45	11.59		Firm low strength brown silty very sandy CLAY.
								End of borehole at 3.45 m

Remarks

1. Terminated due to blowing sands and unable to advance casing. 2. Water strike encountered at 1.50 m bgl.

Borehole Log

Borehole No. **WS207**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361956.35 - 391692.74	Hole Type WS
Location: Warrington		Level: 16.14	Scale 1:50
Client: Satnam Group		Dates: 22/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	15.84		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
		1.00		N=9 (1,2/2,2,2,3)				Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of mudstone and sandstone.
		2.00		N=12 (3,3/3,2,3,4)	2.00	14.14		
		2.20	ES					Medium dense brown clayey fine to medium SAND.
					2.60	13.54		Brown sandy CLAY.
		3.00		N=16 (2,2/4,3,3,6)	3.10	13.04		Medium dense brown clayey fine to medium SAND.
		4.00		N=14 (2,2/2,2,4,6)	4.00	12.14		Stiff medium strength brown sandy CLAY.
		5.00		N=13 (2,3/3,3,4,3)				
					5.45	10.69		End of borehole at 5.45 m

Remarks
1. Complete.

Borehole Log

Borehole No. **WS208**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361942.59 - 391760.81	Hole Type WS
Location: Warrington		Level: 16.43	Scale 1:50
Client: Satnam Group		Dates: 22/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.10	16.33		Brown sandy CLAY with frequent rootlets. (TOPSOIL).
		0.50	U		0.30	16.13		Brown slightly sandy CLAY with organic matter.
					0.40	16.03		Brown fine to medium SAND.
		1.00		N=7 (1,2/2,2,1,2)	1.00	15.43		Firm low strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal.
		2.00		N=20 (3,3/4,5,5,6)	2.00	14.43		Firm low strength brown gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal.
		3.00		N=19 (3,4/5,4,5,5)	3.00	13.43		Very stiff high strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal.
		4.00		N=24 (3,4/5,6,6,7)	4.00	12.43		No return. Assumed to be very stiff, high strength brown gravelly CLAY.
		5.00		N=28 (4,5/6,7,8,7)				Very stiff high strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal.
					5.45	10.98		End of borehole at 5.45 m

Remarks

1. Complete. 2. Monitoring well installed. 3. Response zone 1.00m - 5.00m bgl.

Borehole Log

Borehole No. **WS209**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361878.35 - 391695.00	Hole Type WS
Location:	Warrington		Level:	15.21	Scale 1:50
Client:	Satnam Group		Dates:	28/03/2022 -	Logged By H. MORGAN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	14.91		MADE GROUND: Dark brown gravelly very sandy clay. Gravel is fine to medium subangular to rounded of sandstone and mudstone. (Topsoil).
	▼				0.90	14.31		MADE GROUND: Orangey brown gravelly very sandy clay. Gravel is fine to medium subangular to rounded of sandstone and mudstone. (Land drain at 0.90m bgl).
		1.00 1.10	ES	N=11 (2,3/3,3,3,2)	1.20	14.01		Orangey brown gravelly very sandy CLAY. Gravel is fine to medium sub-angular to rounded of sandstone and mudstone.
		2.00		N=13 (2,2/3,3,3,4)				Stiff medium strength brown very sandy gravelly CLAY. Gravel is subangular to rounded of sandstone and mudstone. (Becoming very stiff very high strength circa 4.00 m bgl).
		3.00		N=17 (2,3/3,4,5,5)				
	▼	4.00		50 (4,5/50 for 230mm)				
					4.38	10.83		End of borehole at 4.38 m

Remarks

1. Refused in very stiff CLAY at 4.38m bgl. 2. Water strike encountered at 0.90m bgl due to a land drain and at 4.00m bgl - seepage.

Borehole Log

Borehole No. **WS210**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361879.53 - 391643.08	Hole Type WS
Location: Warrington		Level: 14.63	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By H. MORGAN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	14.33		Dark brown gravelly very sandy CLAY with frequent rootlets. Gravel is fine to medium subangular to subrounded of sandstone and mudstone. (TOPSOIL).
		0.60	ES		0.80	13.83		Greyish brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to rounded of sandstone and mudstone.
		1.00		N=14 (3,3/3,4,4,3)				Medium dense orangish brown fine to coarse SAND. (Becoming dense circa 2.00 m bgl).
		2.00		50 (6,9/50 for 230mm)				
					2.38	12.25		End of borehole at 2.38 m

Remarks

1. Refused in dense SAND at 2.38m bgl. 2. Water strike encountered at 1.80m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 2.00 m bgl.

Borehole Log

Borehole No. **WS211**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361799.98 - 391688.15	Hole Type WS
Location: Warrington		Level: 13.39	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By H. MORGAN

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	12.99		Dark brown gravelly very sandy CLAY. Gravel is fine to medium subangular to rounded of sandstone and mudstone. (TOPSOIL).
					0.70	12.69		Firm brown very sandy CLAY.
		1.00 1.10	ES	N=8 (1,2/1,2,2,3)				Stiff medium strength orangish brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal.
	▼	2.00		N=15 (3,3/4,3,4,4)	1.90	11.49		Stiff medium strength brown gravelly very sandy CLAY. Gravel is fine to medium subangular to subrounded of sandstone, mudstone, and coal.
		3.00		N=13 (2,2/3,3,4,3)	2.90	10.49		Medium dense brown slightly gravelly fine to coarse SAND.
		4.00		50 (9,12/50 for 225mm)	3.80	9.59		Very stiff very high strength brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
					4.38	9.01		End of borehole at 4.38 m

Remarks

1. Refused in very stiff CLAY at 4.38m bgl. 2. Water strike encountered at 2.00m bgl.

Borehole Log

Borehole No. **WS212**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361470.17 - 391466.85	Hole Type WS
Location: Warrington		Level: 10.10	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	9.80		Dark brown CLAY with frequent rootlets. (TOPSOIL).
								Brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
		1.00		N=10 (3,2/2,2,3,3)	1.00	9.10		
					1.30	8.80		Stiff medium strength dark brown CLAY with frequent organics.
								Brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone.
		2.00		N=28 (4,4/7,7,8,6)	2.00	8.10		
								Medium dense brown fine to medium SAND. (Becoming dense circa 2.70m bgl).
		2.70		50 (11,16/50 for 165mm)				
					3.02	7.08		End of borehole at 3.02 m

Remarks

1. Refused in dense SAND at 3.02m bgl.

Borehole Log

Borehole No. **WS213**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361428.59 - 391533.82	Hole Type WS
Location: Warrington		Level: 10.48	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	10.18		Dark brown CLAY with frequent rootlets. (TOPSOIL).
					0.80	9.68		Light brown slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		0.90 1.00	ES	N=13 (1,1/2,2,4,5)	1.00	9.48		Brown gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone.
								Medium dense brown fine to medium SAND.
		1.50		50 (6,7/50 for 215mm)	1.50	8.98		Very stiff very high strength brown gravelly CLAY. Gravel is fine to medium subangular to subrounded of sandstone.
					1.80	8.68		Red fine to coarse SAND.
					1.86	8.62		End of borehole at 1.86 m

Remarks

1. Refused on suspected weathered bedrock. 2. Monitoring well installed. 3. Response zone 0.50 - 1.50 m bgl.

Borehole Log

Borehole No. **WS214**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361373.22 - 391599.63	Hole Type WS
Location: Warrington		Level: 10.42	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	10.12		Dark brown CLAY with frequent rootlets. (Topsoil).
		0.50	U					Brown CLAY.
		1.00		N=8 (1,1/2,2,2,2)	1.00	9.42		Stiff medium strength brown sandy CLAY. (Becoming very stiff very high strength circa 1.80m bgl).
		1.80		50 (7,10/50 for 160mm)	2.11	8.31		End of borehole at 2.11 m

Remarks
1. Refused in very stiff CLAY at 2.11m bgl.

Borehole Log

Borehole No. **WS215**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361232.86 - 391569.34	Hole Type WS
Location: Warrington		Level: 11.03	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	10.82		Brown CLAY with frequent rootlets. (TOPSOIL).
		1.00		N=12 (1,2/2,3,3,4)				Stiff medium strength brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
		2.00 2.10	ES	N=14 (1,2/3,3,3,5)				
					2.50	8.52		Very stiff very high strength brown grey mottled slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
	▼	3.00		50 (7,8/50 for 160mm)	3.16	7.86		End of borehole at 3.16 m

Remarks

1. Refused on cobble. 2. Water strike encountered at 3.00m bgl.

Borehole Log

Borehole No. **WS216**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361278.00 - 391649.46	Hole Type WS
Location: Warrington		Level: 10.44	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.40	10.04		Brown CLAY with frequent rootlets. (TOPSOIL).
		1.00		N=14 (3,3/2,3,4,5)				Stiff medium strength brown grey mottled gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal. (Becoming very stiff very high strength circa 2.00m bgl).
		2.00		N=47 (5,8/10,14,13,10)				
		2.50	U					
	▼	2.80		N=53 (7,8/16,19,12,6)	3.00	7.44		Dense brown red fine to medium SAND.
					3.25	7.19		End of borehole at 3.25 m

Remarks

1. Refused in dense SAND at 3.25m bgl. 2. Water strike encountered at 2.80m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 2.00m bgl. 5. Saturated SAND from 3.00m bgl.

Borehole Log

Borehole No. **WS217**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361280.17 - 391617.39	Hole Type WS
Location: Warrington		Level: 10.77	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	10.57		Dark brown CLAY with frequent rootlets. (TOPSOIL).
		1.00 1.00	ES	N=10 (1,2/2,3,2,3)				Stiff medium strength brown grey mottled gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. (Becoming very stiff high strength circa 2.00m bgl).
		2.00		N=17 (4,4/3,4,5,5)				
		2.90		50 (10,13/50 for 225mm)	3.00	7.77		Dense red gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
					3.28	7.49		End of borehole at 3.28 m

Remarks

1. Refused in dense SAND at 3.28m bgl. 2. Water strike encountered at 2.00m bgl. 3. Monitoring well installed. 4. Response zone 0.50m - 3.00m bgl. 5. Saturated from 2.00m bgl.

Borehole Log

Borehole No. **WS218**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361220.86 - 391491.54	Hole Type WS
Location:	Warrington		Level:	9.72	Scale 1:50
Client:	Satnam Group		Dates:	24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.40	9.32		Dark brown slightly gravelly CLAY with frequent rootlets. Gravel is fine to coarse subangular to subrounded of sandstone, mudstone, and coal. (TOPSOIL).
	▼	1.00		N=7 (1,1/2,1,1,3)	0.80	8.92		Dark brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of coal and sandstone.
		2.00		50 (3,3/50 for 230mm)	1.80	7.92		Firm low strength brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
					2.38	7.34		Dense red gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
								End of borehole at 2.38 m

Remarks

1. Refused in dense SAND at 2.38m bgl. 2. Water strike encountered at 1.00m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 2.00m bgl.

Borehole Log

Borehole No. **WS219**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361208.78 - 391625.43	Hole Type WS
Location: Warrington		Level: 10.21	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	9.91		Dark brown slightly sandy slightly gravelly CLAY with frequent rootlets. Gravel is fine to fine to medium subangular to subrounded of sandstone and mudstone. (TOPSOIL).
					0.80	9.41		Brown sandy CLAY.
		1.00		N=5 (1,1/1,1,1,2)				Firm low strength brown slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone and mudstone. (Becoming stiff medium strength circa 2.00m bgl).
		2.00		N=14 (2,2/3,3,3,5)				
	▼	2.80		50 (9,11/50 for 230mm)	3.00	7.21		
					3.18	7.03		Dense reddish brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
								End of borehole at 3.18 m

Remarks

1. Refused in dense SAND at 3.18m bgl. 2. Water strike encountered at 2.80m bgl.

Borehole Log

Borehole No. **WS220**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361215.27 - 391742.33	Hole Type WS
Location: Warrington		Level: 10.28	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	9.98		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
		0.60	ES					Loose brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		1.00		N=9 (1,2/2,3,2,2)				
	▼				1.50	8.78		Very stiff high strength brown CLAY.
		2.00		N=19 (2,3/3,5,5,6)				
					2.45	7.82		Dense brown slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		3.00		50 (50 for 75mm/50 for 75mm)	3.15	7.12		End of borehole at 3.15 m

Remarks

1. Refused in dense SAND at 3.15m bgl. 2. Water strike encountered at 2.00 m bgl. 3. Saturated from 2.00m bgl.

Borehole Log

Borehole No. **WS221**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361255.53 - 391805.71	Hole Type WS
Location: Warrington		Level: 10.37	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	10.07		MADE GROUND: Brown slightly gravelly clay with frequent rootlets. Gravel is fine to coarse subangular to subrounded of brick. (TOPSOIL).
		0.50	U					Stiff medium strength brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
		1.00		N=11 (1,1/2,3,3,3)				
		2.00		N=10 (1,1/2,2,2,4)				
		3.00		N=22 (2,2/3,6,6,7)	3.00	7.37		
					3.10	7.27		Red gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		3.70		N=50 (10,10/10,12,14,14)				Very stiff high strength brown grey mottled slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone. (Circa 3.70m bgl becomes very stiff very high strength).
					4.00	6.37		
					4.15	6.22		Red gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
								End of borehole at 4.15 m

Remarks

1. Refused in dense SAND at 4.15m bgl. 2. Monitoring well installed. 3. Response zone 2.00m - 4.00m bgl.

Borehole Log

Borehole No. **WS222**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361406.52 - 391839.76	Hole Type WS
Location: Warrington		Level: 10.73	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	▼				0.30	10.43		Dark brown CLAY with frequent rootlets. (Topsoil).
		0.80	ES					Medium dense brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		1.00		N=14 (1,2/3,4,4,3)				
					1.80	8.93		Brown sandy CLAY.
		2.00		N=18 (2,2/4,4,4,6)	2.00	8.73		Medium dense brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
					2.30	8.43		Brown sandy CLAY.
		3.00		N=18 (3,4/4,4,4,6)	3.00	7.73		Medium dense brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone. (Circa 4.00m bgl becomes dense).
		4.00		50 (4,8/50 for 230mm)				
					4.38	6.35		End of borehole at 4.38 m

Remarks

1. Refused in dense SAND at 4.38m bgl. 2. Water strike encountered at 0.50m bgl.

Borehole Log

Borehole No. **WS223**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361344.03 - 391832.33	Hole Type WS
Location: Warrington		Level: 10.69	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.40	10.29		Dark brown CLAY with frequent rootlets. (TOPSOIL).
	▼	1.00		N=13 (2,2/3,3,3,4)	1.00	9.69		Brown slightly clayey fine to medium SAND.
					1.60	9.09		Medium dense brown gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		2.00		N=18 (3,4/4,4,4,6)	2.40	8.29		Very stiff high strength brown sandy CLAY.
		3.00		N=22 (4,5/5,6,5,6)	3.00	7.69		Brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		4.00		N=25 (6,7/7,5,6,7)				No return. Assumed to be medium dense brown gravelly fine to coarse SAND (becoming dense circa 5.00 m bgl).
		5.00		50 (50 for 75mm/50 for 75mm)	5.15	5.54		End of borehole at 5.15 m

Remarks

1. Complete 2. Water strike encountered at 1.00m bgl. 3. Monitoring well installed. 4. Response zone 1.00m - 3.50m bgl. 5. Saturated throughout.

Borehole Log

Borehole No. **WS224**

Sheet 1 of 1

Project Name:	Peel Hall	Project No. 15740	Co-ords:	361210.54 - 391869.53	Hole Type WS
Location:	Warrington		Level:	10.69	Scale 1:50
Client:	Satnam Group		Dates:	24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	10.29		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
		1.00		N=9 (1,2/2,3,2,2)				Loose brown gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of sandstone.
		1.60	ES					
	▼	2.00		N=12 (3,3/2,3,3,4)	2.00	8.69		Stiff medium strength brown sandy CLAY.
		2.50	U					
		3.00		N=10 (2,2/3,3,2,2)	3.00	7.69		Loose brown gravelly fine to coarse SAND. Gravel is fine to medium subangular to subrounded of sandstone. (Becoming medium dense circa 5.00 m bgl).
		4.00		N=11 (4,3/3,2,3,3)				
		5.00		N=13 (5,4/4,3,3,3)				
					5.45	5.24		End of borehole at 5.45 m

Remarks

1. Complete. 2. Water strike encountered at 2.00m bgl. 3. Saturated from 2.00m bgl.

Borehole Log

Borehole No. **WS225**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361555.36 - 391867.13	Hole Type WS
Location: Warrington		Level: 23.85	Scale 1:50
Client: Satnam Group		Dates: 28/03/2022 -	Logged By G. CALVERT

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	23.65		MADE GROUND: Dark brown slightly clayey fine to medium sand with occasional rootlets and fragments of brick.
		0.60	ES					MADE GROUND: Grey mottled brown slightly gravelly sandy clay. Gravel is fine to medium subangular to subrounded of clinker, ash sandstone, mudstone and fragments of brick.
		1.00		N=10 (1,1/2,2,3,3)	0.90	22.95		
					1.20	22.65		Grey mottled brown very slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
					1.70	22.15		Medium dense light brownish grey slightly clayey fine to medium SAND.
	▼	2.00		N=12 (2,3/3,3,3,3)	2.00	21.85		Grey mottled brown very slightly gravelly sandy CLAY. Gravel is fine subangular to subrounded of sandstone and mudstone.
		2.40	ES					Medium dense brown slightly clayey fine to medium SAND. (Becoming loose circa 3.00 m bgl).
		3.00		N=8 (2,2/1,2,2,3)				
	▼	4.00		N=13 (5,3/3,3,3,4)	3.80	20.05		Stiff medium strength brown very sandy CLAY.
					4.30	19.55		Dense brown slightly clayey fine to medium SAND.
		4.70		50 (6,13/50 for 155mm)				
					5.00	18.85		End of borehole at 5.00 m

Remarks

1. Refused in dense SAND at 5.01m bgl. Water strike encountered at 2.20m bgl and 4.00m bgl. 3. Monitoring well installed. 4. Response zone 0.50m - 4.50m bgl.

Trial Pit Log

TrialPit No SA101
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361991.91 - 391919.32 Level: 17.81	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.50 x 0.50 Depth 2.00	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	17.51		MADE GROUND: Dark brown slightly sandy clay with frequent rootlets. (Reworked Topsoil).
				1.60	16.21		Firm light brown slightly gravelly CLAY. Gravel is fine to coarse subangular to angular of sandstone.
				2.00	15.81		Light brown yellowish gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
							End of Pit at 2.00m

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA102
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361759.47 - 391896.05 Level: 17.28	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.20 x 0.50 Depth 1.40	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	16.98		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
				1.40	15.88		Light brown orangey fine SAND.
							End of Pit at 1.40m

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4

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA103
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361897.45 - 391630.99 Level: 14.71	Date 21/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.60 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	14.41		MADE GROUND: Dark brown slightly sandy clay with frequent rootlets. (Reworked topsoil).
				0.50	14.21		MADE GROUND: Light brown orangey sandy clay. (Reworked clay).
				1.50	13.21		Stiff orangey brown slightly gravelly CLAY. Gravel is fine to coarse subangular to angular of sandstone.
				1.80	12.91		Yellowish orange gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
							End of Pit at 1.80m

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA104
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361770.58 - 391681.25 Level: 12.88	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.20 × 0.65, Depth 1.60	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	12.48		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
				1.60	11.28		Brownish yellow fine to medium slightly clayey medium to coarse SAND with pockets of brown sandy CLAY.
							End of Pit at 1.60m

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Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA106
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361482.85 - 391689.90 Level: 10.43	Date 22/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.80 Depth 1.30	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.13		Dark brown CLAY with frequent rootlets. (TOPSOIL).
				0.50	9.93		Yellowish orange slightly silty fine to medium SAND.
				1.30	9.13		Orangey brown slightly silty gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
							End of Pit at 1.30m

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No SA107
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361274.07 - 391769.84 Level: 10.52	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.00 × 0.65 Depth 1.50	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown slightly clayey medium SAND with frequent rootlets. (TOPSOIL).
				0.30	10.22		Soft light brown slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
				1.00	9.52		Light brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
				1.50	9.02		End of Pit at 1.50m

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA108
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361458.93 - 391862.03 Level: 10.71	Date 23/03/2022
Location: Warrington		Dimensions (m): 2.20 × 0.70 Depth 1.50	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.41		Dark brown CLAY with frequent rootlets. (TOPSOIL).
				1.50	9.21		Stiff brown mottled blue CLAY.
							End of Pit at 1.50m

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Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA109
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361151.44 - 391543.24 Level: 10.78	Date 23/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.70 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.48		Dark brown CLAY with frequent rootlets. (TOPSOIL).
							Stiff brown blue mottled grey CLAY.
				1.70	9.08		End of Pit at 1.70m

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Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: SA110
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361029.86 - 391829.99 Level: 10.75	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.80 x 0.70 Depth 1.80	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	10.45		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
				0.70	10.05		Stiff orangey yellow sandy CLAY.
				1.80	8.95		Light brown orangey CLAY.
							End of Pit at 1.80m

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Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No SA111 Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360740.13 - 391774.59 Level: 10.38	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.70 x 0.70 Depth 1.40	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
				0.30	10.08		Yellowish brown gravelly fine to medium SAND with pockets of firm brown sandy CLAY. Gravel is fine to coarse subangular to subrounded of sandstone.
				0.50	9.88		Brownish orange slightly gravelly clayey fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
				1.10	9.28		Brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
				1.40	8.98		End of Pit at 1.40m

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No SA112
Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361369.00 - 391472.00 Level:	Date 24/03/2022
Location: Warrington		Dimensions (m): 1.80 × 0.80 Depth 1.70	Scale 1:30
Client: Satnam Group			Logged R. WEBSTER

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30			Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
				1.30			Yellowish orange slightly clayey fine to medium SAND.
				1.70			Firm orangey brown slightly sandy CLAY.
							End of Pit at 1.70m

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4

Remarks: 1. Complete

Stability: Stable

Borehole Log

Borehole No. **CP101**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 362033.70 - 391893.51	Hole Type CP
Location: Warrington		Level: 17.15	Scale 1:50
Client: Satnam Group		Dates: 23/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	16.85		Dark brown slightly sandy CLAY with frequent rootlets. (TOPSOIL).
					0.70	16.45		Reddish brown sandy CLAY.
		1.00		N=8 (2,2/2,1,2,3)				Loose brown fine to medium SAND.
		2.00		N=9 (2,2/2,3,2,2)				
	▼	3.00		N=21 (2,3/4,5,6,6)				
					3.20	13.95		Very stiff high strength brown CLAY.
		4.00		N=21 (3,4/4,5,6,6)				
					4.80	12.35		Dense brown fine to medium SAND.
		5.00		52 (7,14/52 for 110mm)				
		6.00		50 (25 for 25mm/50 for 35mm)				
					6.50	10.65		End of borehole at 6.50 m

Remarks

1. Refused in dense SAND at 6.50m bgl. 2. Water strike at 3.00m bgl.

Borehole Log

Borehole No. **CP102**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361945.35 - 391625.05	Hole Type CP
Location: Warrington		Level: 14.61	Scale 1:50
Client: Satnam Group		Dates: 24/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	14.21		Dark brown clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
		1.00		N=7 (2,2/2,2,1,2)				Loose brown fine to medium SAND.
		2.00		N=9 (2,2/3,2,2,2)				
	▼	3.00		N=10 (2,2/1,2,5,2)				
		4.00		N=18 (2,3/4,4,4,6)	4.10	10.51		Very stiff high strength firm brown CLAY. (Becoming very stiff very high strength circa 5.00 m bgl).
		5.00		N=45 (3,3/4,6,6,29)				
					5.50	9.11		Greyish brown fine to medium SAND with frequent bands of brown sandy CLAY.
		6.00		50 (25 for 20mm/50 for 20mm)	6.00	8.61		Dense greyish brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		7.00		50 (25 for 10mm/50 for 25mm)	7.00	7.61		End of borehole at 7.00 m

Remarks

1. Refused in dense SAND at 7.00m bgl. 2. Water strike at 3.00 m bgl.

Borehole Log

Borehole No. **CP103**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 360824.57 - 391798.81	Hole Type CP
Location: Warrington		Level: 10.32	Scale 1:50
Client: Satnam Group		Dates: 25/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
	▼				0.30	10.02		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
								Medium dense brown fine to medium SAND.
		1.00		N=14 (2,2/3,4,4,3)				
		2.00		N=13 (2,2/2,5,3,3)				
					2.50	7.82		Stiff medium strength brown sandy CLAY.
		3.00		N=15 (2,3/4,3,4,4)				
					3.50	6.82		Very stiff high strength brown CLAY.
		4.00		N=21 (3,4/4,5,6,6)				
	▼	5.00		N=43 (4,5/10,10,11,12)	5.10	5.22		Dense reddish brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
					5.40	4.92		Dense reddish brown sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of sandstone. (Weathered sandstone bedrock). (Becoming medium dense circa 7.00 m bgl).
		6.00		50 (25 for 95mm/50 for 40mm)				
		7.00		50 (25 for 20mm/50 for 30mm)	7.00	3.32		End of borehole at 7.00 m

Remarks

1. Refused in dense GRAVEL at 7.00m bgl (weathered sandstone bedrock). 2. Water strike encountered at 0.50m bgl and 5.10m bgl.

Borehole Log

Borehole No. **RB101**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361123.68 - 391739.48	Hole Type CP
Location: Warrington		Level: 10.92	Scale 1:50
Client: Satnam Group		Dates: 30/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	10.72		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL). Firm to stiff brown silty CLAY.
		1.00		N=30 (3,5/6,7,8,9)	1.00	9.92		Very stiff very high strength brown silty CLAY.
		2.00		N=15 (2,3/4,3,3,5)	1.90	9.02		Stiff medium strength firm brown silty CLAY.
		3.00		N=15 (1,2/3,4,4,4)				
		4.00		50 (3,5/50 for 275mm)	4.20	6.72		Dense reddish brown slightly sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of sandstone. (Weathered sandstone bedrock).
		5.00		50 (9,2/50 for 195mm)				
		6.00		50 (10,12/50 for 160mm)				
		7.00		40 (25 for 85mm/40 for 95mm)	7.25	3.67		End of borehole at 7.25 m

Remarks

1. Refused in GRAVEL at 7.25m bgl (weathered sandstone bedrock).

Borehole Log

Borehole No. **RB103**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361395.41 - 391832.22	Hole Type CP
Location: Warrington		Level: 10.79	Scale 1:50
Client: Satnam Group		Dates: 31/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	10.59		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
		1.00		N=17 (2,3/4,4,4,5)				Very stiff high strength brown silty CLAY.
					1.50	9.29		Very stiff high strength brown silty CLAY. (becoming very stiff very high strength circa 3.00 m bgl).
		2.00		N=29 (3,4/6,7,8,8)				
		3.00		N=35 (5,6/8,8,9,10)				
		4.00		N=44 (5,7/9,10,12,13)				
					4.50	6.29		Dense reddish brown slightly sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of sandstone. (Weathered sandstone bedrock).
		5.00		50 (10,15/50 for 120mm)				
		6.00		50 (25 for 80mm/50 for 100mm)	6.15	4.64		End of borehole at 6.15 m

Remarks

1. Refused in GRAVEL at 6.15m bgl (weathered sandstone bedrock).

Borehole Log

Borehole No. **RB104**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361320.39 - 391642.25	Hole Type CP
Location: Warrington		Level: 11.02	Scale 1:50
Client: Satnam Group		Dates: 31/03/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	10.82		Dark brown slightly clayey fine to medium SAND with frequent rootlets. (TOPSOIL).
		1.00		N=22 (2,3/4,5,6,7)				Medium dense brown fine to medium SAND.
		2.00		N=18 (2,3/4,4,4,6)				
					2.60	8.42		Medium dense brown gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
		3.00		N=33 (3,5/7,8,8,10)				
					3.70	7.32		Brown sandy CLAY.
		4.00		50 (6,10/50 for 195mm)	4.10	6.92		Dense reddish brown slightly sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of sandstone. (Weathered sandstone bedrock).
		5.00		50 (25 for 85mm/50 for 130mm)	5.25	5.77		End of borehole at 5.25 m

Remarks

1. Refused in GRAVEL at 5.25m bgl (weathered sandstone bedrock).

Borehole Log

Borehole No. **RB105**

Sheet 1 of 1

Project Name: Peel Hall	Project No. 15740	Co-ords: 361829.53 - 391756.43	Hole Type CP
Location: Warrington		Level: 14.97	Scale 1:50
Client: Satnam Group		Dates: 01/04/2022 -	Logged By H. MASON

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	14.77		Dark brown sandy CLAY with frequent rootlets. (TOPSOIL).
								Firm brown CLAY.
		1.00		N=20 (2,3/5,5,5,5)	1.00	13.97		Very stiff high strength brown CLAY.
		2.00		N=25 (3,4/5,7,6,7)				
		3.00		N=31 (2,4/6,7,8,10)				
					3.80	11.17		
		4.00		50 (25 for 100mm/50 for 125mm)				Dense reddish brown slightly sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of sandstone. (Weathered sandstone bedrock).
		5.00		50 (25 for 85mm/50 for 65mm)				
					5.25	9.72		End of borehole at 5.25 m

Remarks

1. Refused in GRAVEL at 5.25m bgl (weathered sandstone bedrock). 2. Monitoring well installed. 3. Response zone 0.50m - 5.00m bgl.

APPENDIX VI
CHEMICAL TESTING RESULTS

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Analytical Report Number : 22-56893

Replaces Analytical Report Number: 22-56893, issue no. 1
Client references/information amended.

Project / Site name:	Peel Hall	**Samples received on:**	06/05/2022
Your job number:		**Samples instructed on/ Analysis started on:**	06/05/2022
Your order number:	001538	**Analysis completed by:**	13/05/2022
Report Issue Number:	2	**Report issued on:**	13/05/2022
Samples Analysed:	4 water samples		

Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 22-56893
Project / Site name: Peel Hall

Your Order No: 001538

Lab Sample Number				2267761	2267762	2267763	2267764
Sample Reference				WS121	WS116	WS113	WS107
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022	06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.3	7.3	7.3	7.1
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	5.05	4.78	7.24	4.19
Total Phenols							
Total Phenols (monohydric)	µg/l	1	ISO 17025	2.3	1.8	1.3	1.4
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	130	130	150	160
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1	2.4	0.24	0.59
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	0.04	0.04	0.07
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	< 0.2	0.7	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	0.8	0.7	1.9	0.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	630	440	21	2000
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.8	3.6	3.1	14
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	0.8	0.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.8	4	4.1	5.5
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-56893
Project / Site name: Peel Hall

Your Order No: 001538

Lab Sample Number				2267761	2267762	2267763	2267764
Sample Reference				WS121	WS116	WS113	WS107
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022	06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-56893
Project / Site name: Peel Hall

Your Order No: 001538

Lab Sample Number				2267761	2267762	2267763	2267764
Sample Reference				WS121	WS116	WS113	WS107
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022	06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
SVOCs							
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-56893
Project / Site name: Peel Hall

Your Order No: 001538

Lab Sample Number				2267761	2267762	2267763	2267764
Sample Reference				WS121	WS116	WS113	WS107
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022	06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10

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

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Analytical Report Number : 22-56893
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions

Analytical Report Number : 22-56893
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
HS	Headspace Analysis				
MS	Mass spectrometry				
FID	Flame Ionisation Detector				
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 22-56904

Project / Site name:	Peelnall	**Samples received on:**	06/05/2022
Your job number:	15740	**Samples instructed on/ Analysis started on:**	06/05/2022
Your order number:	001538	**Analysis completed by:**	12/05/2022
Report Issue Number:	1	**Report issued on:**	12/05/2022
Samples Analysed:	2 water samples		

Signed:

Claire Brown-Crociquia
Group Customer Services Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 22-56904
Project / Site name: Peelnall

Your Order No: 001538

Lab Sample Number				2267809	2267810
Sample Reference				WS119	WS102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH	pH Units	N/A	ISO 17025	6.7	6.7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	16.4	15.5
Total Phenols					
Total Phenols (monohydric)	µg/l	1	ISO 17025	1.4	1.2
Heavy Metals / Metalloids					
Calcium (dissolved)	mg/l	0.012	ISO 17025	56	58
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.56	2.74
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.07	0.13
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.3	2.6
Copper (dissolved)	µg/l	0.5	ISO 17025	10	15
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	420	280
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	9.1	10
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.4	1.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	8.6	5.9
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
Petroleum Hydrocarbons					
TPH1 (C10 - C40) $_{EH\_2D\_TOTAL\_\#1\_\#2}$	µg/l	10	ISO 17025	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10

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Analytical Report Number: 22-56904
Project / Site name: Peelnall

Your Order No: 001538

Lab Sample Number				2267809	2267810
Sample Reference				WS119	WS102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

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Analytical Report Number: 22-56904
Project / Site name: Peelnall

Your Order No: 001538

Lab Sample Number				2267809	2267810
Sample Reference				WS119	WS102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

Analytical Report Number: 22-56904
Project / Site name: Peelnall

Your Order No: 001538

Lab Sample Number				2267809	2267810
Sample Reference				WS119	WS102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

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

Analytical Report Number: 22-56904
Project / Site name: Peelnall

Your Order No: 001538

Lab Sample Number				2267809	2267810
Sample Reference				WS119	WS102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				06/05/2022	06/05/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10

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

Analytical Report Number : 22-56904
Project / Site name: Peelnall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 22-56904
Project / Site name: Peelnall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 22-48408

Project / Site name:	Peel Hall	**Samples received on:**	28/03/2022
Your job number:	15 740	**Samples instructed on/ Analysis started on:**	28/03/2022
Your order number:	PO001085	**Analysis completed by:**	04/04/2022
Report Issue Number:	1	**Report issued on:**	04/04/2022
Samples Analysed:	1 soil sample		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 22-48408
Project / Site name: Peel Hall
Your Order No: PO001085

Lab Sample Number				2219627
Sample Reference				WS116
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				25/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	19
Total mass of sample received	kg	0.001	NONE	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	260
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.058
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	120
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	58.3
Sulphide	mg/kg	1	MCERTS	< 1.0
Total Sulphur	mg/kg	50	MCERTS	120
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	43
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	44
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67

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Analytical Report Number: 22-48408
Project / Site name: Peel Hall
Your Order No: PO001085

Lab Sample Number				2219627
Sample Reference				WS116
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				25/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Petroleum Hydrocarbons				
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10

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

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Analytical Report Number : 22-48408
Project / Site name: Peel Hall

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2219627	WS116	None Supplied	1.2	Brown clay and sand.

Analytical Report Number : 22-48408
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Analytical Report Number : 22-48408
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-48435

Project / Site name:	Peel Hall	**Samples received on:**	28/03/2022
Your job number:	15-740	**Samples instructed on/ Analysis started on:**	28/03/2022
Your order number:		**Analysis completed by:**	05/04/2022
Report Issue Number:	1	**Report issued on:**	05/04/2022
Samples Analysed:	1 leachate sample - 41 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	13	12	14	23
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZS	N/A	N/A	N/A	SZS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	7.0	8.2	8.1	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	310	64	< 50	< 50	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0069	0.0028	0.0014	0.0025	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	14	5.6	2.7	5	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	6.9	2.8	1.4	2.5	-
Sulphide	mg/kg	1	MCERTS	4.4	1.6	< 1.0	1.1	-
Total Sulphur	mg/kg	50	MCERTS	220	< 50	< 50	< 50	-
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	0.1	0.3	0.1	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	< 0.80	< 0.80

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	4.7	6	2.4	2.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	23
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	-	0.17
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	7.9	32	9.8	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	40	9.6	19	10	6.6
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	3.8	8.7	3.6	3.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	11	20	11	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	75	23	31	16	17
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219751	2219752	2219753	2219754	2219755
Sample Reference				WS201	WS201	WS203	TP206	TP207
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.80	0.80	1.00	0.40
Date Sampled				21/03/2022	21/03/2022	21/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	19	10	12	7.5
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	SZS	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	6.5	7.3	-	6.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	120	270	200	-	170
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0062	0.0039	0.0045	-	0.003
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	12	7.8	8.9	-	6
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	6.2	3.9	4.5	-	3
Sulphide	mg/kg	1	MCERTS	2.2	2.5	1.4	-	2.1
Total Sulphur	mg/kg	50	MCERTS	220	200	130	-	81
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	1.5	0.9	-	0.5
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.4	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	0.83	< 0.80	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.7	11	7.4	2.9	5.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	29	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	0.42	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	0.2	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	20	18	-	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	25	25	6.6	9.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.3	42	30	4.1	10
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	< 0.3	< 0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	14	14	16	8.3
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	12	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	41	56	59	31	25
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	6	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	13	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	19	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219756	2219757	2219758	2219759	2219760
Sample Reference				TP208	WS208	WS106	WS103	WS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.20	0.20	0.90	0.40
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	25	22	28	18	12
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SZS	SZS	SZS	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.8	8.0	6.4	6.7	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	490	100	430	340	200
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.018	0.012	0.022	0.013	0.052
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	35	25	45	25	100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	17.5	12.4	22.3	12.6	51.8
Sulphide	mg/kg	1	MCERTS	3.6	1.3	2	2.9	< 1.0
Total Sulphur	mg/kg	50	MCERTS	350	76	250	320	110
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.4	0.6	2.1	2.5	0.4
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.56	0.34	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.86	0.73	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.87	0.75	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.35	0.39	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.4	0.39	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.29	0.39	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	0.23	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.3	0.34	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	3.84	3.56	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	12	14	12	8.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	53	23	19	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	29	30	40	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	45	16	51	70	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	56	17	13	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	72	57	78	51

Petroleum Hydrocarbons

TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219761	2219762	2219763	2219764	2219765
Sample Reference				TP210	TP211	TP218	WS104	WS101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.20	0.20	1.40
Date Sampled				23/03/2022	23/03/2022	23/03/2022	23/03/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	29	15	20	19
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SZS	SZS	N/A	SZS	DSA
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.3	-	8.0	8.2	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	460	-	< 50	410	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0088	-	0.0031	0.0068	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	18	-	6.1	14	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	8.8	-	3.1	6.8	-
Sulphide	mg/kg	1	MCERTS	6.6	-	1.7	< 1.0	-
Total Sulphur	mg/kg	50	MCERTS	350	-	< 50	350	-
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3	-	0.2	2	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.42	0.23	< 0.05	0.33	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.45	0.25	< 0.05	0.4	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.22	< 0.05	< 0.05	0.21	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.27	< 0.05	< 0.05	0.2	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.59	< 0.80	< 0.80	1.14	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	19	1.8	16	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	85	-	-	75
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.81	-	-	0.57
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.5	-	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	-	7.1	28	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	61	35	4.1	38	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	54	3.7	69	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	20	5.4	18	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.3	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	31	-	-	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	65	12	80	66
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Project / Site name: Peel Hall

Lab Sample Number				2219766	2219767	2219768	2219769	2219770
Sample Reference				WS102	WS214	WS222	WS223	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.80	0.20	0.10
Date Sampled				23/03/2022	23/03/2022	24/03/2022	24/03/2022	21/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	16	9.9	16	15
Total mass of sample received	kg	0.001	NONE	1	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	N/A	N/A	DSA
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0	-	8.2	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	150	-	170	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.02	-	0.012	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	41	-	24	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	20.4	-	11.8	-	-
Sulphide	mg/kg	1	MCERTS	2.6	-	< 1.0	-	-
Total Sulphur	mg/kg	50	MCERTS	85	-	81	-	-
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	-	0.3	-	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.29	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.28	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.9	13	6.3	2.2	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	81	-	25	84
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.79	-	0.27	0.59
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.2	-	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	-	26	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.9	43	16	15	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8	76	8.8	6.6	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	15	28	21	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	24	-	9.8	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	24	92	38	39	51

Petroleum Hydrocarbons

TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219771	2219772	2219773	2219774	2219775
Sample Reference				TP106	TP108	TP109	TP112	TP113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.20	1.20	1.00	0.10
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	25	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	33	15	34	14	20
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	N/A	MDB	N/A	MDB

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	5.7	7.1	5.8	-	6.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1400	930	1300	-	560
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.013	0.011	0.019	-	0.0094
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	27	22	38	-	19
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	13.3	11.1	19.2	-	9.4
Sulphide	mg/kg	1	MCERTS	7.2	< 1.0	6.2	-	1.6
Total Sulphur	mg/kg	50	MCERTS	890	380	1300	-	460
Organic Matter	%	0.1	MCERTS	-	-	13	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	6	0.3	-	-	2.3
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	7.6	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.4	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.32	< 0.05	1.4	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.32	< 0.05	1.5	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.82	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.65	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.5	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.29	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.51	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	7.3	< 0.80	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	3.1	17	5	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	39	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	0.96	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	0.3	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	7.4	26	-	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	5.5	40	23	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	4.4	74	11	57
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	< 0.3	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	4.3	18	34	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.5	2.5	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	30	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	12	86	52	69
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Project / Site name: Peel Hall

Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219776	2219777	2219778	2219779	2219780
Sample Reference				TP115	TP116	TP117	TP122	TP124
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.70	0.10	1.50	0.20
Date Sampled				22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	18	26	20	26
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	MDB	N/A	MDB
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	-	7.0	7.7	6.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	120	-	420	260	130
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0086	-	0.011	0.031	0.0095
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	17	-	21	63	19
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	8.6	-	10.5	31.3	9.5
Sulphide	mg/kg	1	MCERTS	< 1.0	-	1.1	< 1.0	1.1
Total Sulphur	mg/kg	50	MCERTS	130	-	340	180	320
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6	-	2.4	0.6	2.1
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	-	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	7.2	15	11	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	180	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.7	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.4	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	-	39	56	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	26	32	32	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	15	43	20	57
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34	50	38	57	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	51	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	50	63	82	77	83
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	-	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	< 1.0	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219781	2219782	2219783	2219784	2219785
Sample Reference				TP125	TP129	TP131	TP136	TP139
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	1.20	0.10	0.80	0.10
Date Sampled				22/03/2022	23/03/2022	23/03/2022	23/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	17	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	16	21	14	16
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	MDB	KSZ	N/A	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.8	-	5.5	8.2	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	480	-	460	100	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.015	-	0.0074	0.0045	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	30	-	15	9	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	15.2	-	7.4	4.5	-
Sulphide	mg/kg	1	MCERTS	< 1.0	-	3	< 1.0	-
Total Sulphur	mg/kg	50	MCERTS	< 50	-	390	< 50	-
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.1	-	3.3	0.1	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.45	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05	< 0.05	0.28
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.51	< 0.05	< 0.05	0.27
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.3	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.25	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	2.05	< 0.80	< 0.80	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.2	7.4	15	3.9	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	55	-	-	81
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.43	-	-	0.73
Boron (water soluble)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.7	-	19	5.6	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.2	27	31	3.6	40
Lead (aqua regia extractable)	mg/kg	1	MCERTS	2.7	46	48	2.7	84
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.5	9.5	14	4.3	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	12	-	-	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	14	56	82	12	81
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219786	2219787	2219788	2219789	2219790
Sample Reference				TP140	TP141	TP142	TP143	TP144
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.20	0.10	1.80	0.20
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	24/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.001	NONE	0.4

Asbestos in Soil	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	210
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.013
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	26
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	12.8
Sulphide	mg/kg	1	MCERTS	4.6
Total Sulphur	mg/kg	50	MCERTS	110
Organic Matter	%	0.1	MCERTS	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	42
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60

Petroleum Hydrocarbons

TPH (C5 - C6) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0
TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	MCERTS	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
VOCs				
Chloromethane	µg/kg	1	ISO 17025	-
Chloroethane	µg/kg	1	NONE	-
Bromomethane	µg/kg	1	ISO 17025	-
Vinyl Chloride	µg/kg	1	NONE	-
Trichlorofluoromethane	µg/kg	1	NONE	-
1,1-Dichloroethene	µg/kg	1	NONE	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloromethane	µg/kg	1	MCERTS	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-
Benzene	µg/kg	1	MCERTS	-
Tetrachloromethane	µg/kg	1	MCERTS	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloroethene	µg/kg	1	MCERTS	-
Dibromomethane	µg/kg	1	MCERTS	-
Bromodichloromethane	µg/kg	1	MCERTS	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-
Toluene	µg/kg	1	MCERTS	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-
Dibromochloromethane	µg/kg	1	ISO 17025	-
Tetrachloroethene	µg/kg	1	NONE	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-
Chlorobenzene	µg/kg	1	MCERTS	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Ethylbenzene	µg/kg	1	MCERTS	-
p & m-Xylene	µg/kg	1	MCERTS	-
Styrene	µg/kg	1	MCERTS	-
Tribromomethane	µg/kg	1	NONE	-
o-Xylene	µg/kg	1	MCERTS	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Isopropylbenzene	µg/kg	1	MCERTS	-
Bromobenzene	µg/kg	1	MCERTS	-
n-Propylbenzene	µg/kg	1	ISO 17025	-
2-Chlorotoluene	µg/kg	1	MCERTS	-
4-Chlorotoluene	µg/kg	1	MCERTS	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-
tert-Butylbenzene	µg/kg	1	MCERTS	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-
sec-Butylbenzene	µg/kg	1	MCERTS	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-
Butylbenzene	µg/kg	1	MCERTS	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
SVOCs				
Aniline	mg/kg	0.1	NONE	-
Phenol	mg/kg	0.2	ISO 17025	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-
2-Methylphenol	mg/kg	0.3	MCERTS	-
Hexachloroethane	mg/kg	0.05	MCERTS	-
Nitrobenzene	mg/kg	0.3	MCERTS	-
4-Methylphenol	mg/kg	0.2	NONE	-
Isophorone	mg/kg	0.2	MCERTS	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-
Naphthalene	mg/kg	0.05	MCERTS	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-
4-Chloroaniline	mg/kg	0.1	NONE	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-
Dibenzofuran	mg/kg	0.2	MCERTS	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Azobenzene	mg/kg	0.3	MCERTS	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Carbazole	mg/kg	0.3	MCERTS	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-
Anthraquinone	mg/kg	0.3	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219791
Sample Reference				TP145
Sample Number				None Supplied
Depth (m)				1.50
Date Sampled				24/03/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

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

Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219797
Sample Reference				TP106
Sample Number				None Supplied
Depth (m)				0.40
Date Sampled				21/03/2022
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	7.7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0
Total Phenols				
Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0
Speciated PAHs				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2
Heavy Metals / Metalloids				
Arsenic (dissolved)	µg/l	1	ISO 17025	3.4
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.7
Copper (dissolved)	µg/l	0.7	ISO 17025	6
Lead (dissolved)	µg/l	1	ISO 17025	4.1
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	4.4
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	8
Monoaromatics & Oxygenates				
Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10

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Analytical Report Number: 22-48435
Project / Site name: Peel Hall

Lab Sample Number				2219797
Sample Reference				TP106
Sample Number				None Supplied
Depth (m)				0.40
Date Sampled				21/03/2022
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Petroleum Hydrocarbons				
TPH1 (C10 - C40) EH_1D_TOTAL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2219751	WS201	None Supplied	0.3	Brown clay and sand with gravel and vegetation.
2219752	WS201	None Supplied	0.8	Brown sand.
2219753	WS203	None Supplied	0.8	Brown clay and sand.
2219754	TP206	None Supplied	1	Brown sand.
2219755	TP207	None Supplied	0.4	Brown sandy loam with gravel and vegetation.
2219756	TP208	None Supplied	0.9	Brown clay and sand with gravel.
2219757	WS208	None Supplied	0.2	Brown clay and sand with gravel and vegetation.
2219758	WS106	None Supplied	0.2	Brown clay and sand with gravel and vegetation.
2219759	WS103	None Supplied	0.9	Brown sand with vegetation.
2219760	WS105	None Supplied	0.4	Brown sandy clay with vegetation.
2219761	TP210	None Supplied	0.2	Brown sandy loam with vegetation.
2219762	TP211	None Supplied	0.5	Brown clay and sand.
2219763	TP218	None Supplied	0.2	Brown clay and sand with gravel and vegetation.
2219764	WS104	None Supplied	0.2	Brown sandy loam with gravel and vegetation.
2219765	WS101	None Supplied	1.4	Brown clay and sand with gravel.
2219766	WS102	None Supplied	0.1	Brown sandy loam with gravel and vegetation.
2219767	WS214	None Supplied	0.1	Brown sandy loam with vegetation.
2219768	WS222	None Supplied	0.8	Brown sand with gravel.
2219769	WS223	None Supplied	0.2	Brown clay and loam with gravel and vegetation.
2219770	TP101	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2219771	TP106	None Supplied	0.4	Brown clay and sand with gravel and vegetation.
2219772	TP108	None Supplied	0.2	Brown clay and loam with gravel and vegetation.
2219773	TP109	None Supplied	1.2	Brown clay and sand with gravel.
2219774	TP112	None Supplied	1	Light brown sand.
2219775	TP113	None Supplied	0.1	Brown clay and sand with gravel and vegetation.
2219776	TP115	None Supplied	0.2	Brown loam and gravel with vegetation and stones.
2219777	TP116	None Supplied	1.7	Brown sand with gravel.
2219778	TP117	None Supplied	0.1	Brown loam with gravel and vegetation.
2219779	TP122	None Supplied	1.5	Brown clay with gravel.
2219780	TP124	None Supplied	0.2	Brown loam with gravel and vegetation.
2219781	TP125	None Supplied	1.3	Brown clay and loam with gravel.
2219782	TP129	None Supplied	1.2	Brown clay.
2219783	TP131	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2219784	TP136	None Supplied	0.8	Brown clay and loam with gravel and vegetation.
2219785	TP139	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2219786	TP140	None Supplied	1.6	Brown sand with gravel and stones.
2219787	TP141	None Supplied	0.2	Brown loam with gravel and vegetation.
2219788	TP142	None Supplied	0.1	Brown loam with gravel and vegetation.
2219789	TP143	None Supplied	1.8	Light brown sand.
2219790	TP144	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2219791	TP145	None Supplied	1.5	Brown clay and sand with gravel.

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Analytical Report Number : 22-48435
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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

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Analytical Report Number : 22-48435
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

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Analytical Report Number : 22-48435
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Analytical Report Number : 22-48435
Project / Site name: Peel Hall

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP101	None Supplied	S	2219770	c	Total cyanide in soil	L080-PL	c
TP106	None Supplied	S	2219771	c	Sulphide in soil	L010-PL	c
TP106	None Supplied	S	2219771	c	Total cyanide in soil	L080-PL	c
TP108	None Supplied	S	2219772	c	Total cyanide in soil	L080-PL	c
TP109	None Supplied	S	2219773	c	Sulphide in soil	L010-PL	c
TP109	None Supplied	S	2219773	c	Total cyanide in soil	L080-PL	c
TP112	None Supplied	S	2219774	c	Total cyanide in soil	L080-PL	c
WS201	None Supplied	S	2219751	c	Sulphide in soil	L010-PL	c
WS201	None Supplied	S	2219751	c	Total cyanide in soil	L080-PL	c
WS201	None Supplied	S	2219752	c	Sulphide in soil	L010-PL	c
WS201	None Supplied	S	2219752	c	Total cyanide in soil	L080-PL	c
WS203	None Supplied	S	2219753	c	Sulphide in soil	L010-PL	c
WS203	None Supplied	S	2219753	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-48869

Project / Site name:	Peel Hall	**Samples received on:**	28/03/2022
Your job number:	15 740	**Samples instructed on/ Analysis started on:**	31/03/2022
Your order number:		**Analysis completed by:**	06/04/2022
Report Issue Number:	1	**Report issued on:**	06/04/2022
Samples Analysed:	3 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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Analytical Report Number: 22-48869
Project / Site name: Peel Hall

Lab Sample Number				2222161	2222167	2222168
Sample Reference				WS109	TP207	TP208
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.80	0.10
Date Sampled				23/03/2022	23/02/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	36	11	32
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JSW	N/A	JSW
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	6.2	7.3	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1700	91	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.066	0.0057	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	130	11	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	65.9	5.7	-
Sulphide	mg/kg	1	MCERTS	18	1.7	-
Total Sulphur	mg/kg	50	MCERTS	650	70	-
Organic Matter	%	0.1	MCERTS	20	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.3	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	11	-	-
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.61	< 0.05	1.3
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.25
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.89	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.25	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.89	< 0.05	0.26
Pyrene	mg/kg	0.05	MCERTS	0.79	< 0.05	0.28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.4	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.3	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.4	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.37	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.05	< 0.80	2.1

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Analytical Report Number: 22-48869
Project / Site name: Peel Hall

Lab Sample Number				2222161	2222167	2222168
Sample Reference				WS109	TP207	TP208
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.80	0.10
Date Sampled				23/03/2022	23/02/2022	23/03/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	4.7	18
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.93
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	0.7
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	14	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	17	41
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	7.3	70
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.7	17	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	31	90
Petroleum Hydrocarbons						
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	5.5	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	37	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	43	< 10	< 10

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

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Analytical Report Number : 22-48869
Project / Site name: Peel Hall

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2222161	WS109	None Supplied	0.1	Brown loam with gravel and vegetation.
2222167	TP207	None Supplied	0.8	Light brown sand with gravel.
2222168	TP208	None Supplied	0.1	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-48869
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS

Analytical Report Number : 22-48869
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report

Analytical Report Number : 22-48869
Project / Site name: Peel Hall

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP207	None Supplied	S	2222167	c	Hexavalent chromium in soil	L080-PL	c
TP207	None Supplied	S	2222167	c	Monohydric phenols in soil	L080-PL	c
TP207	None Supplied	S	2222167	c	Organic matter (Automated) in soil	L009-PL	c
TP207	None Supplied	S	2222167	c	Speciated EPA-16 PAHs in soil	L064-PL	c
TP207	None Supplied	S	2222167	c	Sulphide in soil	L010-PL	c
TP207	None Supplied	S	2222167	c	TPH in (Soil)	L076-PL	c
TP207	None Supplied	S	2222167	c	Total cyanide in soil	L080-PL	c
TP207	None Supplied	S	2222167	c	Total organic carbon (Automated) in soil	L009-PL	c
TP207	None Supplied	S	2222167	c	pH in soil (automated)	L099-PL	c
TP208	None Supplied	S	2222168	c	Total cyanide in soil	L080-PL	c
WS109	None Supplied	S	2222161	c	Sulphide in soil	L010-PL	c
WS109	None Supplied	S	2222161	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-48911

Project / Site name:	Peel Hall	**Samples received on:**	30/03/2022
Your job number:	15-740	**Samples instructed on/ Analysis started on:**	30/03/2022
Your order number:		**Analysis completed by:**	06/04/2022
Report Issue Number:	1	**Report issued on:**	06/04/2022
Samples Analysed:	2 leachate samples - 5 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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

Analytical Report Number: 22-48911
Project / Site name: Peel Hall

Lab Sample Number				2222452	2222453	2222454	2222455	2222456
Sample Reference				WS120	WS121	WS122	WS123	WS225
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	0.10	0.80	0.40	0.60
Date Sampled				28/03/2022	28/03/2022	28/03/2022	28/03/2022	28/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.4	25	14	24	15
Total mass of sample received	kg	0.001	NONE	0.4	0.8	0.4	0.4	0.8
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	JSW	N/A	N/A	JSW

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-	1500
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	-	-	0.54
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	-	-	1100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	-	-	539
Sulphide	mg/kg	1	MCERTS	-	-	-	-	12
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-	860
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	1.5

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	16	3.3	21	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	9.9	200	17	190	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.08	2.2	0.12	1.3	-
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.8	< 0.2	0.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.9
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	6.5	82	8.1	43	72

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Analytical Report Number: 22-48911
Project / Site name: Peel Hall

Lab Sample Number				2222452	2222453	2222454	2222455	2222456
Sample Reference				WS120	WS121	WS122	WS123	WS225
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	0.10	0.80	0.40	0.60
Date Sampled				28/03/2022	28/03/2022	28/03/2022	28/03/2022	28/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1.9	39	3.6	60	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	4.4	38	4.8	30	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	2.2	47	3.8	38	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	14	130	9.7	85	430
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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

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Analytical Report Number: 22-48911
Project / Site name: Peel Hall

Lab Sample Number				2222457	2222458
Sample Reference				WS121	WS225
Sample Number				None Supplied	None Supplied
Depth (m)				0.10	0.60
Date Sampled				28/03/2022	28/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	7.2	7.2
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Total Phenols					
Total Phenols (monohydric)	µg/l	1	ISO 17025	2.8	3.8
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2
Heavy Metals / Metalloids					
Arsenic (dissolved)	µg/l	1	ISO 17025	7.3	< 1.0
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.2	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.1	1.4
Copper (dissolved)	µg/l	0.7	ISO 17025	20	16
Lead (dissolved)	µg/l	1	ISO 17025	7.5	6.9
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	7.5	5.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	27	34
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10

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Analytical Report Number: 22-48911
Project / Site name: Peel Hall

Lab Sample Number				2222457	2222458
Sample Reference				WS121	WS225
Sample Number				None Supplied	None Supplied
Depth (m)				0.10	0.60
Date Sampled				28/03/2022	28/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
TPH1 (C10 - C40) EH_1D_TOTAL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10

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Project / Site name: Peel Hall

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2222452	WS120	None Supplied	1.3	Light brown sand.
2222453	WS121	None Supplied	0.1	Brown sandy loam with gravel and vegetation.
2222454	WS122	None Supplied	0.8	Light brown sand.
2222455	WS123	None Supplied	0.4	Brown clay and loam with gravel and vegetation.
2222456	WS225	None Supplied	0.6	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 22-48911
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography

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Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 22-49117

Project / Site name:	Peel Hall	**Samples received on:**	30/03/2022
Your job number:	15 740	**Samples instructed on/ Analysis started on:**	01/04/2022
Your order number:		**Analysis completed by:**	07/04/2022
Report Issue Number:	1	**Report issued on:**	07/04/2022
Samples Analysed:	8 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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

Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223511	2223512	2223513	2223514	2223515	2223516
Sample Reference				WS217	WS220	WS221	WS224	TP137	WS206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	16	17	15	21	13
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A					

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	-	-	7.5	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	210	-	-	120	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.027	-	-	0.015	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	54	-	-	29	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	27	-	-	14.6	-	-
Sulphide	mg/kg	1	MCERTS	2	-	-	1.2	-	-
Total Sulphur	mg/kg	50	MCERTS	110	-	-	110	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	-	-	0.5	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223511	2223512	2223513	2223514	2223515	2223516
Sample Reference				WS217	WS220	WS221	WS224	TP137	WS206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Heavy Metals / Metalloids									
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	1.4	13	1.9	13	6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	17	86	-	97	40
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.12	0.6	-	0.84	0.38
Boron (water soluble)	mg/kg	0.2	MCERTS	-	< 0.2	0.7	-	1.6	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	-	-	4.7	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	9.5	27	6.6	30	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	9.1	2.3	42	4.8	44	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	3.9	12	5.3	19	7.2
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	3	23	-	37	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	9.6	51	9	58	36
Petroleum Hydrocarbons									
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.5	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	180	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	59	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	240	< 10	< 10

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Sample Reference				WS217	WS220	WS221	WS224	TP137	WS206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
VOCs									
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-	-	-

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Sample Reference				WS217	WS220	WS221	WS224	TP137	WS206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status						
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-	-

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Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
SVOCs									
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-

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Project / Site name: Peel Hall

Lab Sample Number				2223511	2223512	2223513	2223514	2223515	2223516
Sample Reference				WS217	WS220	WS221	WS224	TP137	WS206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.60	1.00	1.60	0.20	0.30
Date Sampled				24/03/2022	24/03/2022	24/03/2022	24/03/2022	23/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-	-

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

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	10
Total mass of sample received	kg	0.001	NONE	0.4	0.4

Asbestos in Soil	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	7.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	97	110
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.023	0.0074
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	45	15
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	22.5	7.4
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	71	60
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	0.4

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.8	4.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	9.2	6.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	21
Petroleum Hydrocarbons					
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/kg	1	ISO 17025	-	-
Chloroethane	µg/kg	1	NONE	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-
Benzene	µg/kg	1	MCERTS	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-
Toluene	µg/kg	1	MCERTS	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-
Styrene	µg/kg	1	MCERTS	-	-
Tribromomethane	µg/kg	1	NONE	-	-
o-Xylene	µg/kg	1	MCERTS	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-

Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-

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Analytical Report Number: 22-49117
Project / Site name: Peel Hall

Lab Sample Number				2223517	2223518
Sample Reference				WS211	WS210
Sample Number				None Supplied	None Supplied
Depth (m)				1.10	0.60
Date Sampled				25/03/2022	25/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-

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

Analytical Report Number : 22-49117
Project / Site name: Peel Hall

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2223511	WS217	None Supplied	1	Brown clay with vegetation and gravel
2223512	WS220	None Supplied	0.6	Brown loam and sand with vegetation and gravel.
2223513	WS221	None Supplied	1	Brown loam and sand with vegetation and gravel.
2223514	WS224	None Supplied	1.6	Brown loam and sand with vegetation and gravel.
2223515	TP137	None Supplied	0.2	Brown loam and sand with vegetation and gravel.
2223516	WS206	None Supplied	0.3	Brown loam and sand with vegetation and gravel.
2223517	WS211	None Supplied	1.1	Brown clay and sand with vegetation and gravel
2223518	WS210	None Supplied	0.6	Brown loam and sand with vegetation and gravel.

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Analytical Report Number : 22-49117
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS

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Analytical Report Number : 22-49117
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Analytical Report Number : 22-49117
Project / Site name: Peel Hall

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP137	None Supplied	S	2223515	c	Total cyanide in soil	L080-PL	c
WS217	None Supplied	S	2223511	c	Sulphide in soil	L010-PL	c
WS217	None Supplied	S	2223511	c	Total cyanide in soil	L080-PL	c
WS220	None Supplied	S	2223512	c	Total cyanide in soil	L080-PL	c
WS221	None Supplied	S	2223513	c	Total cyanide in soil	L080-PL	c
WS224	None Supplied	S	2223514	c	Sulphide in soil	L010-PL	c
WS224	None Supplied	S	2223514	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-52815

Project / Site name:	Peel Hall	**Samples received on:**	20/04/2022
Your job number:	16 240	**Samples instructed on/ Analysis started on:**	20/04/2022
Your order number:		**Analysis completed by:**	27/04/2022
Report Issue Number:	1	**Report issued on:**	27/04/2022
Samples Analysed:	1 water sample		

Izabela Wójcik

Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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

Analytical Report Number: 22-52815
Project / Site name: Peel Hall

Lab Sample Number				2245084
Sample Reference				House-stream
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				Deviating
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH	pH Units	N/A	ISO 17025	7.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	18
Total Phenols				
Total Phenols (monohydric)	µg/l	1	ISO 17025	4.9
Heavy Metals / Metalloids				
Calcium (dissolved)	mg/l	0.012	ISO 17025	130
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	3.41
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	0.5
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	2000
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Monoaromatics & Oxygenates				
Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0
Petroleum Hydrocarbons				
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	ISO 17025	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10

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Analytical Report Number: 22-52815
Project / Site name: Peel Hall

Lab Sample Number				2245084
Sample Reference				House-stream
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				Deviating
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
VOCs				
Chloromethane	µg/l	1	ISO 17025	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0

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Analytical Report Number: 22-52815
Project / Site name: Peel Hall

Lab Sample Number				2245084
Sample Reference				House-stream
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				Deviating
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0

SVOCs

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

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Analytical Report Number: 22-52815
Project / Site name: Peel Hall

Lab Sample Number				2245084
Sample Reference				House-stream
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				Deviating
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10

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

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Analytical Report Number : 22-52815
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 22-52815
Project / Site name: Peel Hall

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Sample Deviation Report

Analytical Report Number : 22-52815
Project / Site name: Peel Hall

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
House-stream	None Supplied	W	2245084	a	None Supplied	None Supplied	None Supplied

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

APPENDIX VII
ORIGIN OF TIER I GENERIC ASSESSMENT CRITERIA

CONSTITUENT	ORIGIN OF RISK ASSESSMENT VALUE
Arsenic	2014 LQM/CIEH S4ULs
Cadmium	2014 LQM/CIEH S4ULs
Chromium	2014 LQM/CIEH S4ULs
Lead	2014 LQM/CIEH S4ULs
Mercury	2014 LQM/CIEH S4ULs – methylmercury
Nickel	2014 LQM/CIEH S4ULs
Selenium	2014 LQM/CIEH S4ULs
Copper	2014 LQM/CIEH S4ULs
Zinc	2014 LQM/CIEH S4ULs
Cyanide – Total	2014 LQM/CIEH S4ULs
Phenols – Total	2014 LQM/CIEH S4ULs
Naphthalene	General assessment criteria (GAC) developed by CIEH/LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM.
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene	
Chrysene	
Benzo(b/k)Fluoranthene [iii]	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C_5-C_6 (aliphatic)	
TPH C_6-C_8 (aliphatic)	
TPH C_8-C_{10} (aliphatic)	
TPH C_{10}-C_{12} (aliphatic)	
TPH C_{12}-C_{16} (aromatic)	
TPH C_{16}-C_{21} (aromatic)	
TPH C_{21}-C_{35} (aromatic)	

APPENDIX VIII
GEOTECHNICAL TESTING RESULTS

LABORATORY REPORT

4043

Contract Number: PSL22/2345

Report Date: 29 April 2022

Client's Reference: 001138

Client Name: E3P
Taylor Road
Urmston
Manchester
M41 7JQ

For the attention of: Georgia Calvert

Contract Title: Peel Hall

Date Received: 31/3/2022
Date Commenced: 31/3/2022
Date Completed: 29/4/2022

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 (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
WS205		U100	2.50	3.00	Firm brown slightly gravelly very sandy CLAY.
WS208		U100	0.50	1.00	CON
WS216		U100	2.50	3.00	Stiff brown gravelly very sandy CLAY.
WS221		U100	0.50	1.00	Firm brown slightly sandy CLAY.
WS122		U100	2.50	3.00	Firm brown slightly sandy CLAY.
WS119		U100	1.50	2.00	Firm brown slightly gravelly sandy CLAY.
WS115		U100	1.50	2.00	CON
WS113		U100	1.50	2.00	Stiff brown slightly gravelly slightly sandy CLAY.
TP205		B	0.70		Brown slightly gravelly slightly clayey silty SAND.
TP215		B	0.80		Brown slightly gravelly slightly silty SAND.
TP107		B	1.00		Brown slightly gravelly silty SAND.
TP112		B	1.20		Brown slightly gravelly slightly silty SAND.
TP116		B	1.20		Brown slightly gravelly silty SAND.
TP122		B	0.40		Brown gravelly slightly clayey silty SAND.
TP140		B	2.00		Brown very gravelly clayey silty SAND with cobbles.
TP142		B	0.70		Brown slightly gravelly silty SAND.
TP147		B	0.50		Brown slightly gravelly silty SAND.
TP104		D	1.50		Brown mottled grey slightly gravelly sandy CLAY.
TP118		D	0.80		Brown slightly gravelly very sandy CLAY.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP130		D	1.00		Brown mottled grey slightly gravelly very sandy CLAY.
TP138		D	0.60		Brown slightly sandy CLAY.
TP144		D	1.30		Brown slightly gravelly very sandy CLAY.
TP148		D	1.60		Dark brown very clayey PEAT.
WS205		SPT	3.00	3.45	Brown gravelly very sandy CLAY.
WS113		SPT	1.00	1.45	Brown slightly gravelly very sandy CLAY.
WS117		SPT	1.00	1.45	Brown mottled grey slightly gravelly sandy CLAY.
WS119		SPT	1.00	1.45	Brown mottled grey slightly gravelly sandy CLAY.
WS121		SPT	3.00	3.45	Brown sandy CLAY.
WS122		SPT	2.00	2.45	Brown sandy CLAY.
WS123		SPT	2.00	2.45	Brown slightly gravelly sandy CLAY.
WS201		SPT	1.00	1.45	Brown slightly gravelly slightly clayey silty SAND.
WS204		SPT	2.00	2.45	Brown slightly gravelly sandy CLAY.
WS208		SPT	2.00	2.45	Brown slightly gravelly very sandy CLAY.
WS101		SPT	2.00	2.45	Brown slightly gravelly very sandy CLAY.
WS213		SPT	1.00	1.45	Brown slightly gravelly very sandy CLAY.
WS218		SPT	2.00	2.45	Reddish brown gravelly silty SAND.
WS224		SPT	2.00	2.45	Brown slightly gravelly sandy CLAY.
WS211		SPT	1.00	1.45	Brown mottled grey slightly 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
TP104		D	1.50		15			42	19	23	97	Intermediate Plasticity CI
TP118		D	0.80		17			33	14	19	98	Low Plasticity CL
TP130		D	1.00		14			28	13	15	95	Low Plasticity CL
TP138		D	0.60		31			62	27	35	100	High Plasticity CH
TP144		D	1.30		15			31	15	16	97	Low Plasticity CL
TP148		D	1.60		352			455	217	238	100	Extremely High Plasticity ME
WS205		SPT	3.00	3.45	15			33	15	18	89	Low Plasticity CL
WS113		SPT	1.00	1.45	17			29	14	15	98	Low Plasticity CL
WS117		SPT	1.00	1.45	26			50	23	27	96	High Plasticity CH
WS119		SPT	1.00	1.45	23			53	24	29	97	High Plasticity CH
WS121		SPT	3.00	3.45	22			48	23	25	100	Intermediate Plasticity CI
WS122		SPT	2.00	2.45	23			52	24	28	100	High Plasticity CH
WS123		SPT	2.00	2.45	29			38	19	19	95	Intermediate Plasticity CI
WS201		SPT	1.00	1.45	24				NP			
WS204		SPT	2.00	2.45	24			41	20	21	96	Intermediate Plasticity CI
WS208		SPT	2.00	2.45	11			32	15	17	94	Low Plasticity CL
WS101		SPT	2.00	2.45	8.5			31	14	17	95	Low Plasticity CL
WS213		SPT	1.00	1.45	10			34	16	18	93	Low Plasticity CL
WS218		SPT	2.00	2.45	18				NP			

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

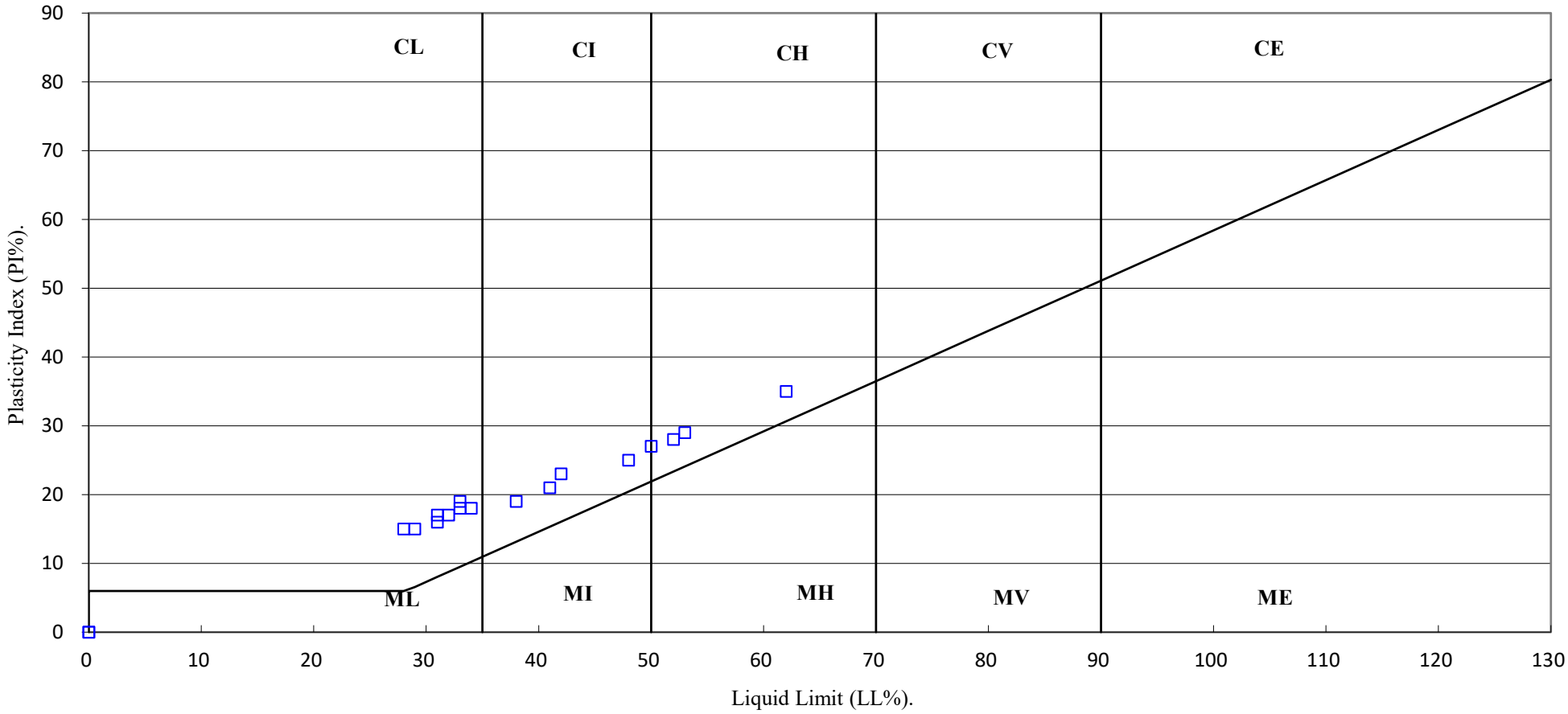
UKAS TESTING 4043

PSL Professional Soils Laboratory

Peel Hall

Contract No:
PSL22/2345
Client Ref:
001138

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	Peel Hall	Contract No: PSL22/2345 Client Ref: 001138

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
WS224		SPT	2.00	2.45	25			53	24	29	95	High Plasticity CH
WS211		SPT	1.00	1.45	18			34	16	18	98	Low Plasticity CL

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

UKAS TESTING 4043

PSL Professional Soils Laboratory

Peel Hall

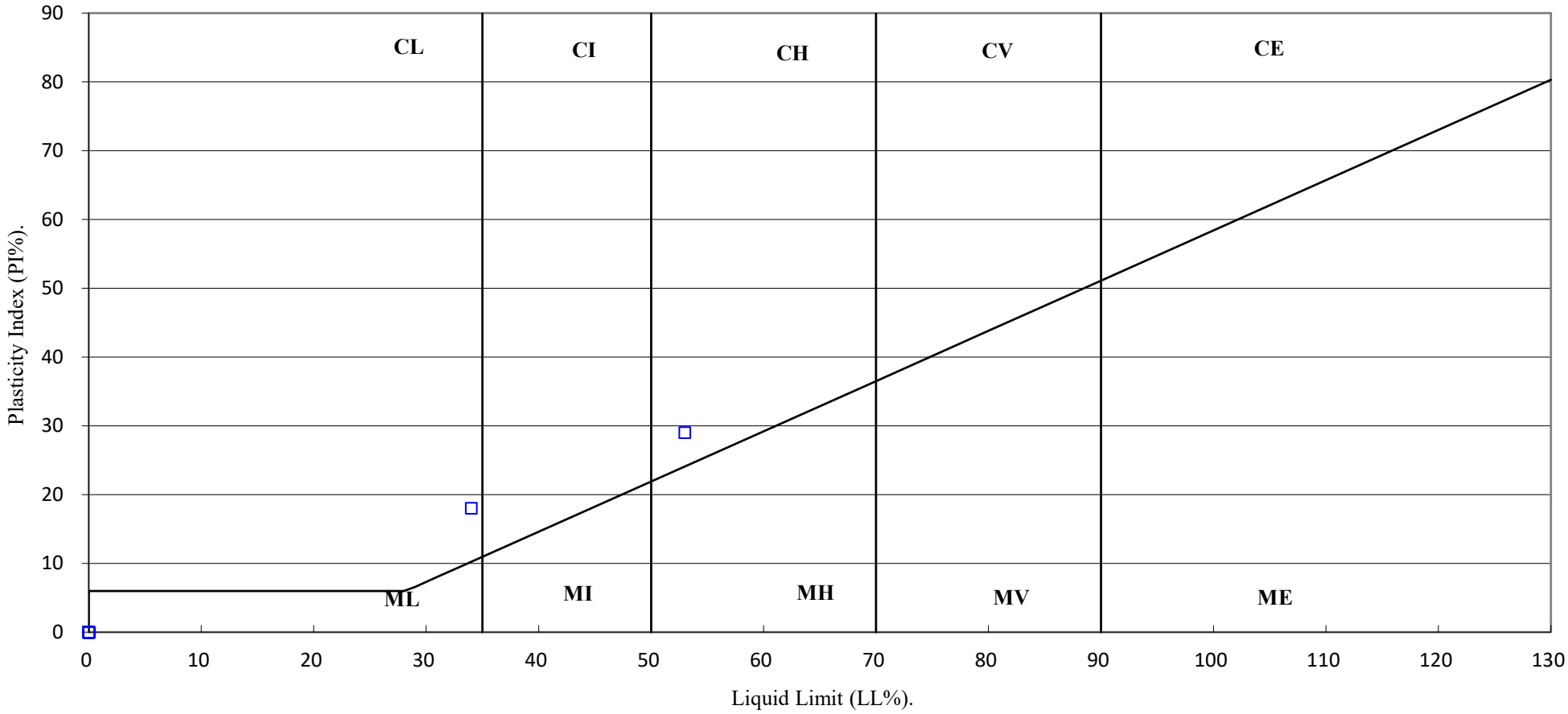
Contract No:

PSL22/2345

Client Ref:

001138

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	Peel Hall	Contract No: PSL22/2345 Client Ref: 001138

PARTICLE SIZE DISTRIBUTION TEST

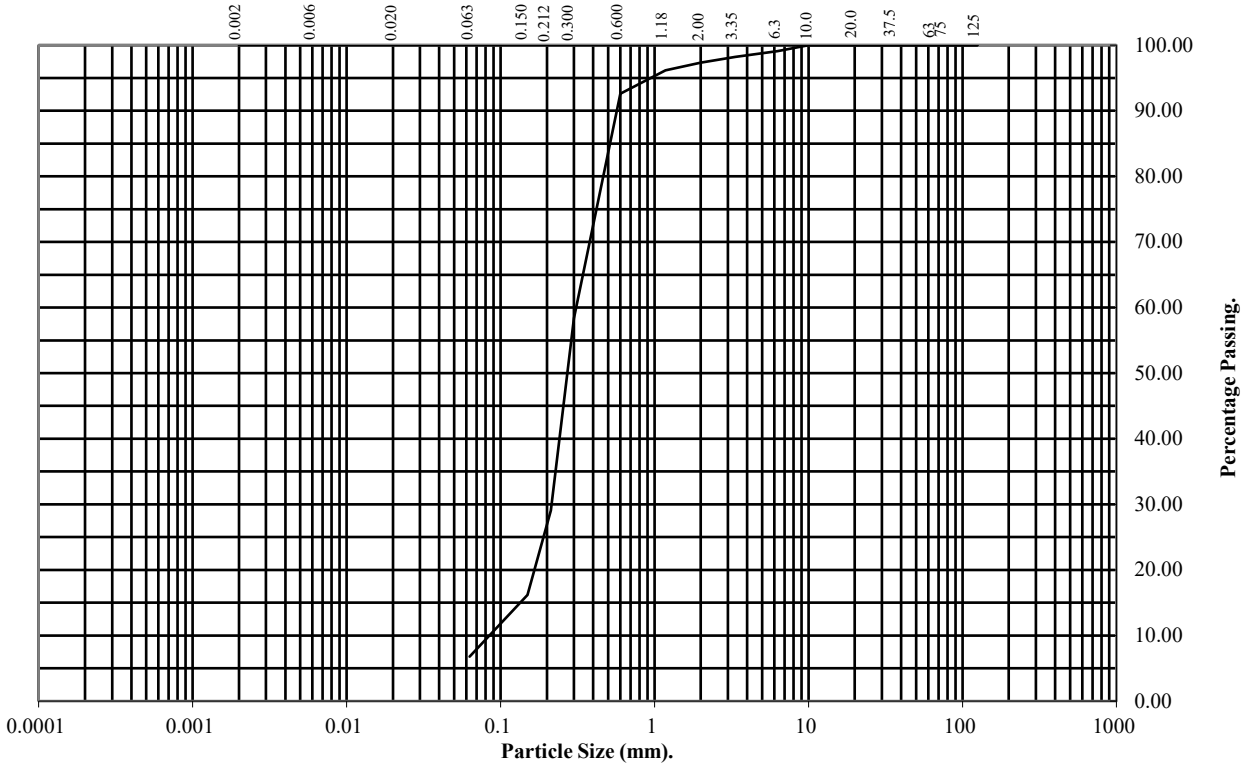
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP107 **Top Depth (m):** 1.00

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	96
0.6	93
0.3	58
0.212	29
0.15	16
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	90
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

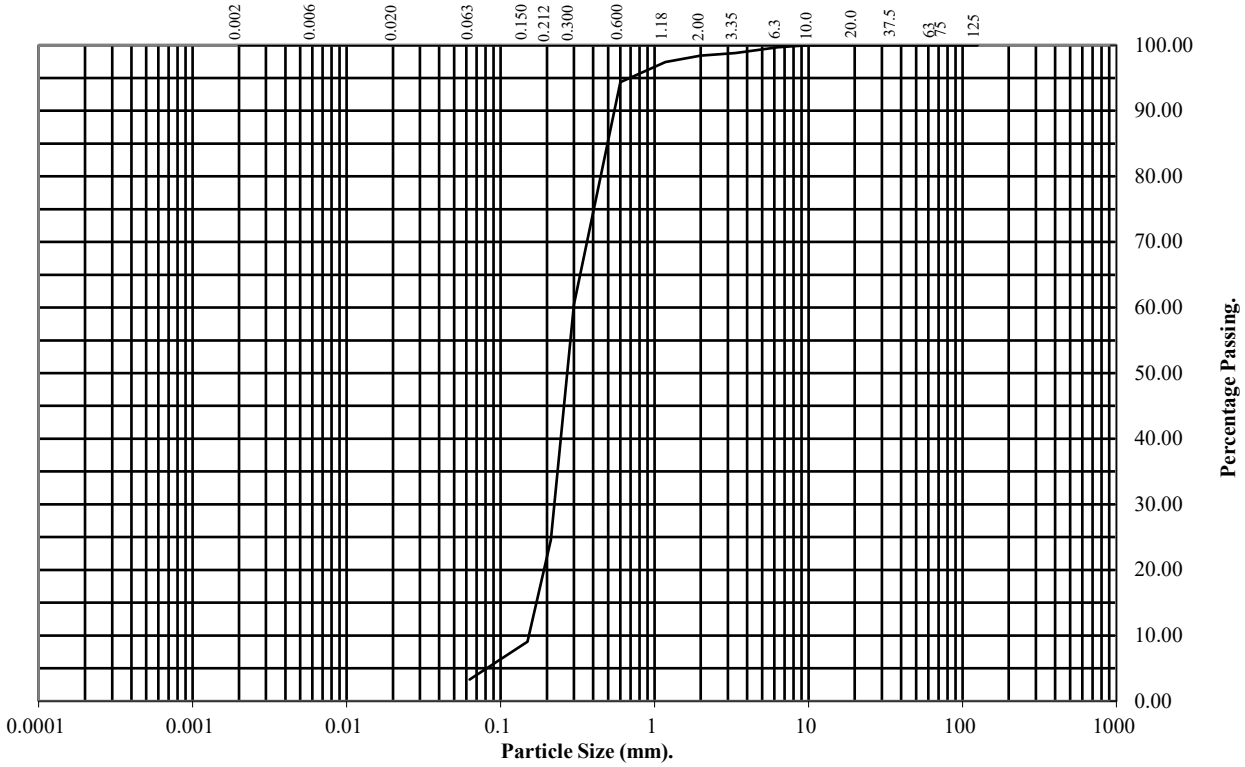
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP112 **Top Depth (m):** 1.20

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	94
0.3	60
0.212	25
0.15	9
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	95
Silt/Clay	3

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

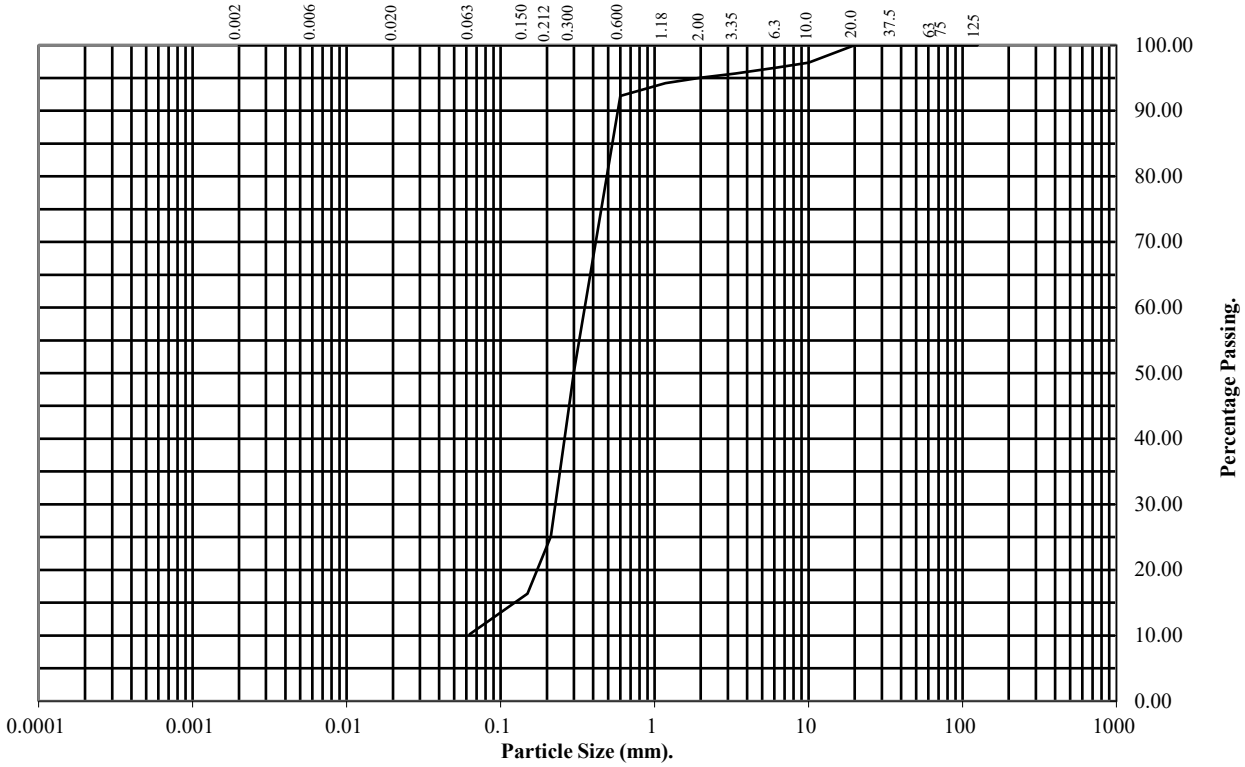
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP116 **Top Depth (m):** 1.20

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	97
3.35	96
2	95
1.18	94
0.6	92
0.3	50
0.212	25
0.15	16
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	85
Silt/Clay	10

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

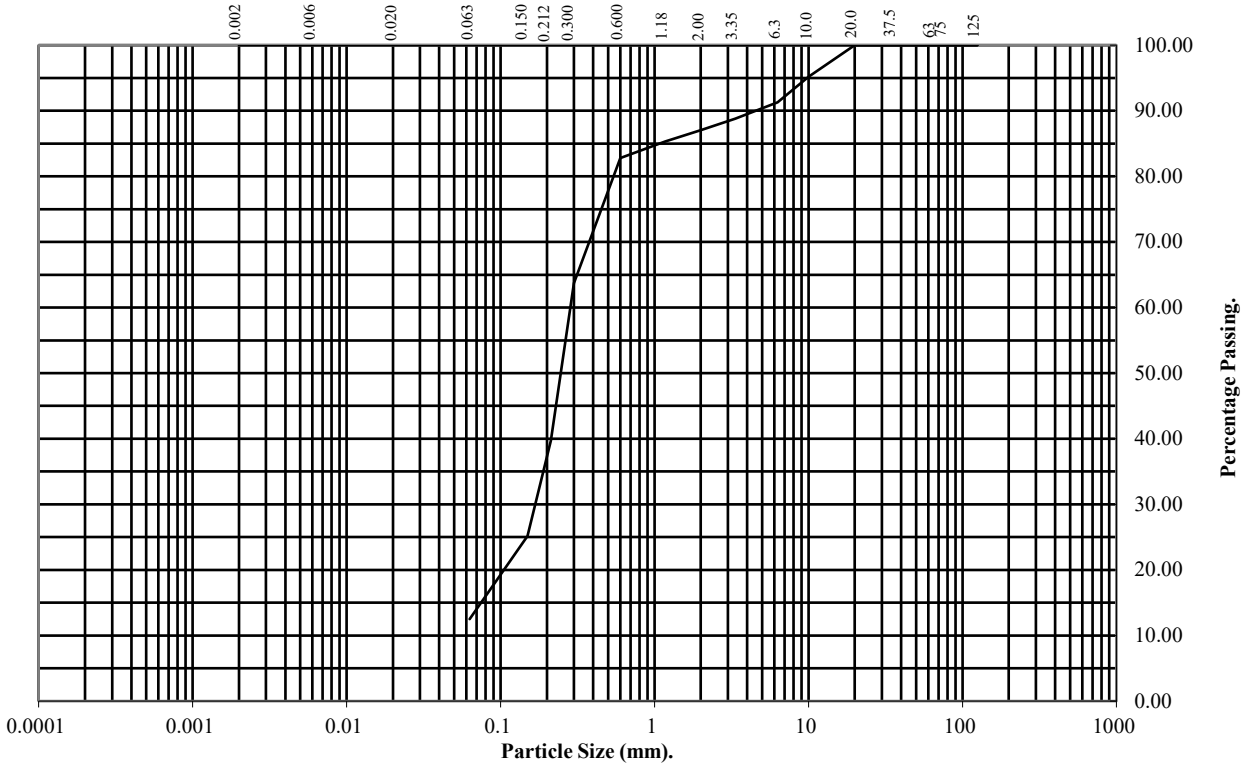
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP122 **Top Depth (m):** 0.40

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	95
6.3	91
3.35	89
2	87
1.18	85
0.6	83
0.3	64
0.212	40
0.15	25
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	74
Silt/Clay	13

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

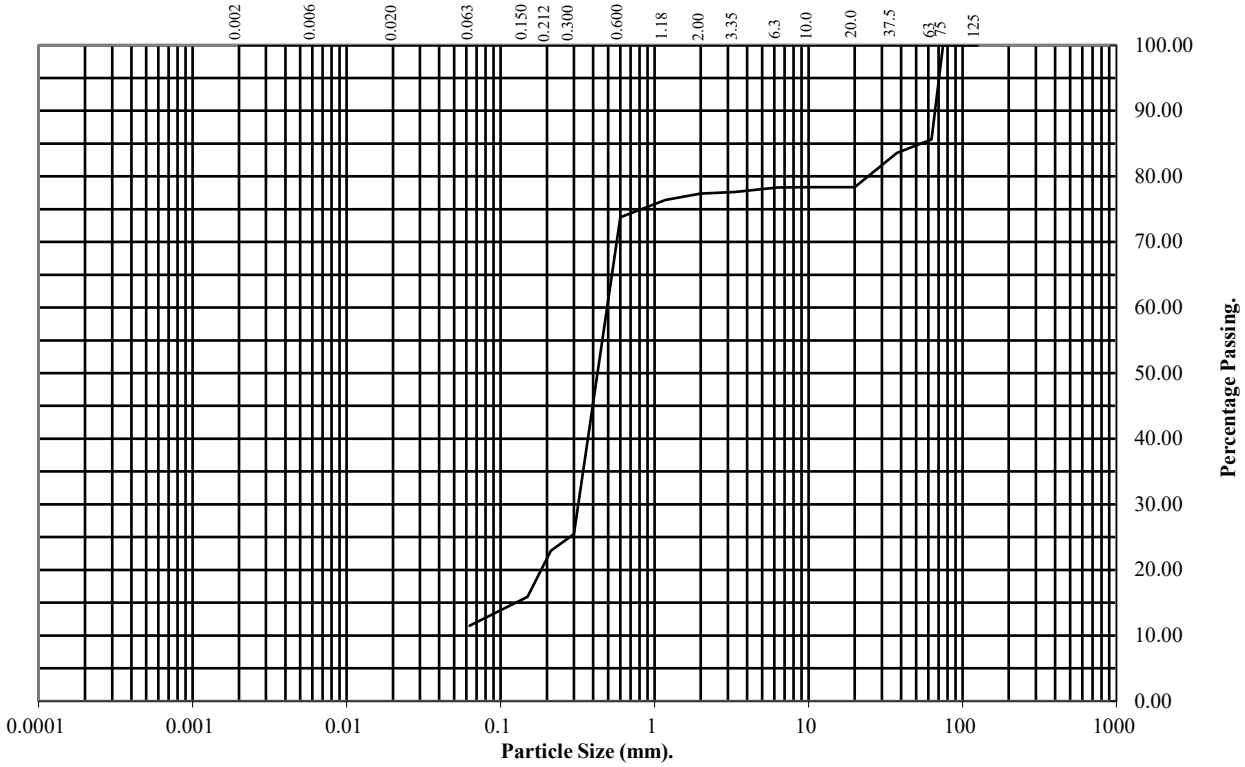
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP140 **Top Depth (m):** 2.00

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	86
37.5	84
20	78
10	78
6.3	78
3.35	78
2	77
1.18	76
0.6	74
0.3	25
0.212	23
0.15	16
0.063	11

Soil Fraction	Total Percentage
Cobbles	14
Gravel	9
Sand	66
Silt/Clay	11

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

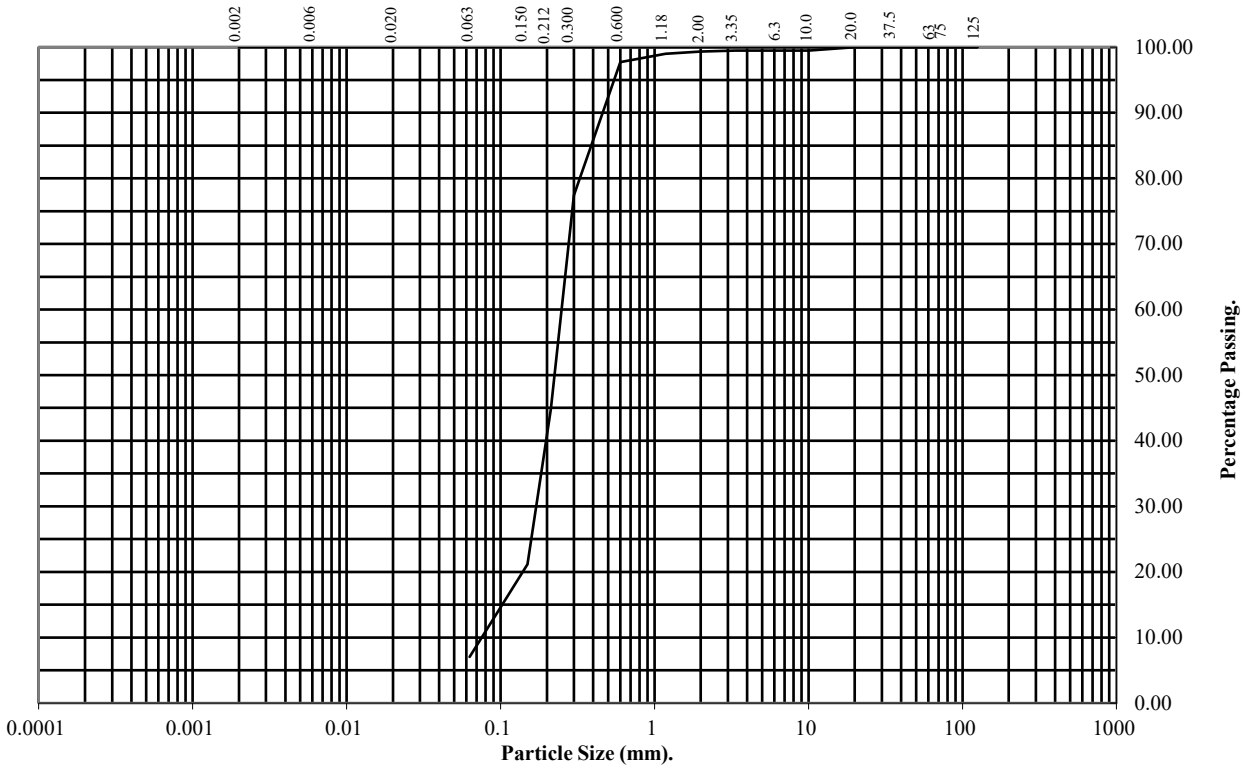
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP142 **Top Depth (m):** 0.70

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	99
3.35	99
2	99
1.18	99
0.6	98
0.3	77
0.212	45
0.15	21
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	92
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

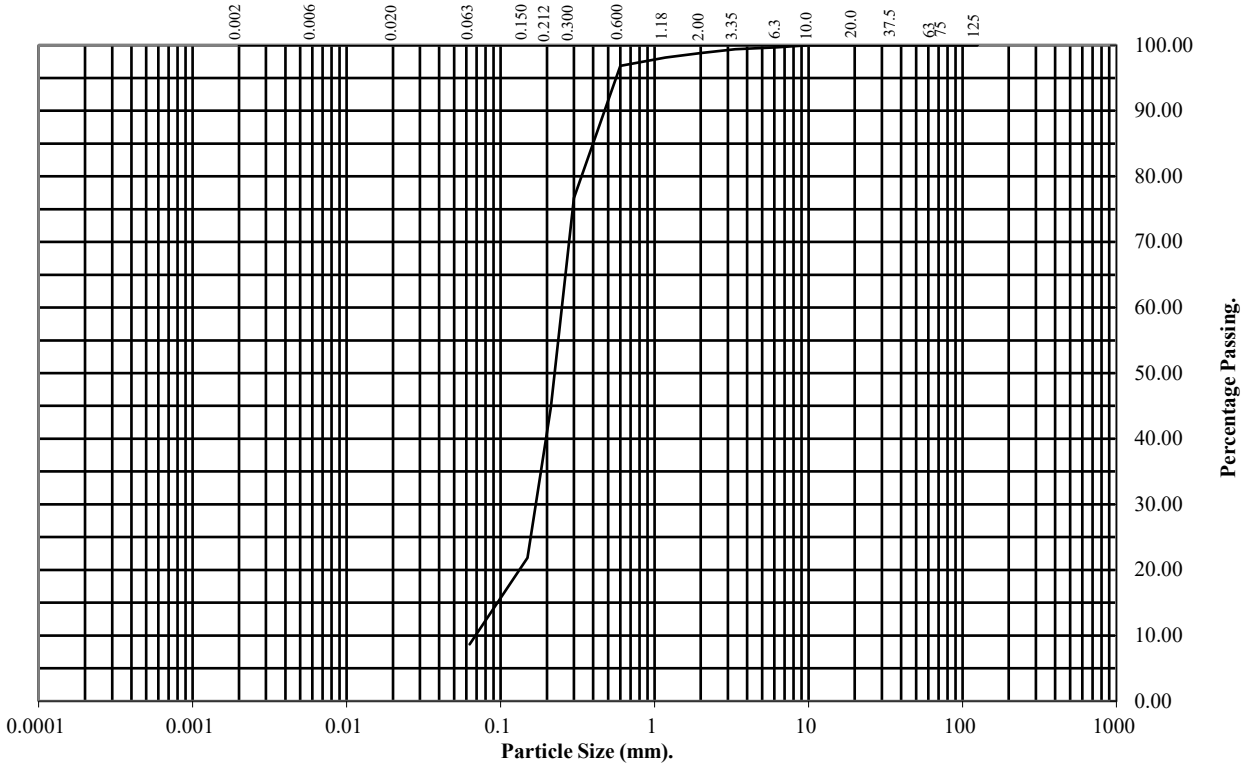
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP147 **Top Depth (m):** 0.50

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	97
0.3	77
0.212	45
0.15	22
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	90
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

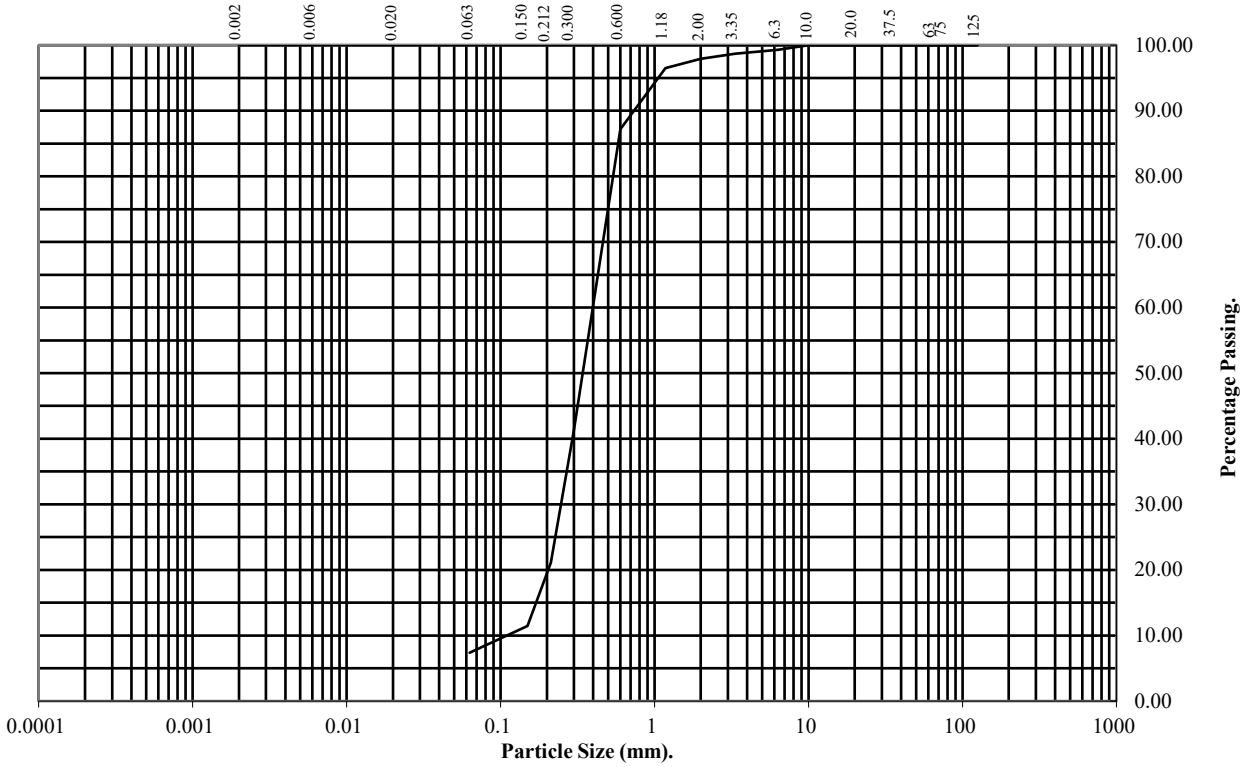
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP205 **Top Depth (m):** 0.70

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	99
2	98
1.18	97
0.6	87
0.3	41
0.212	21
0.15	11
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	91
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

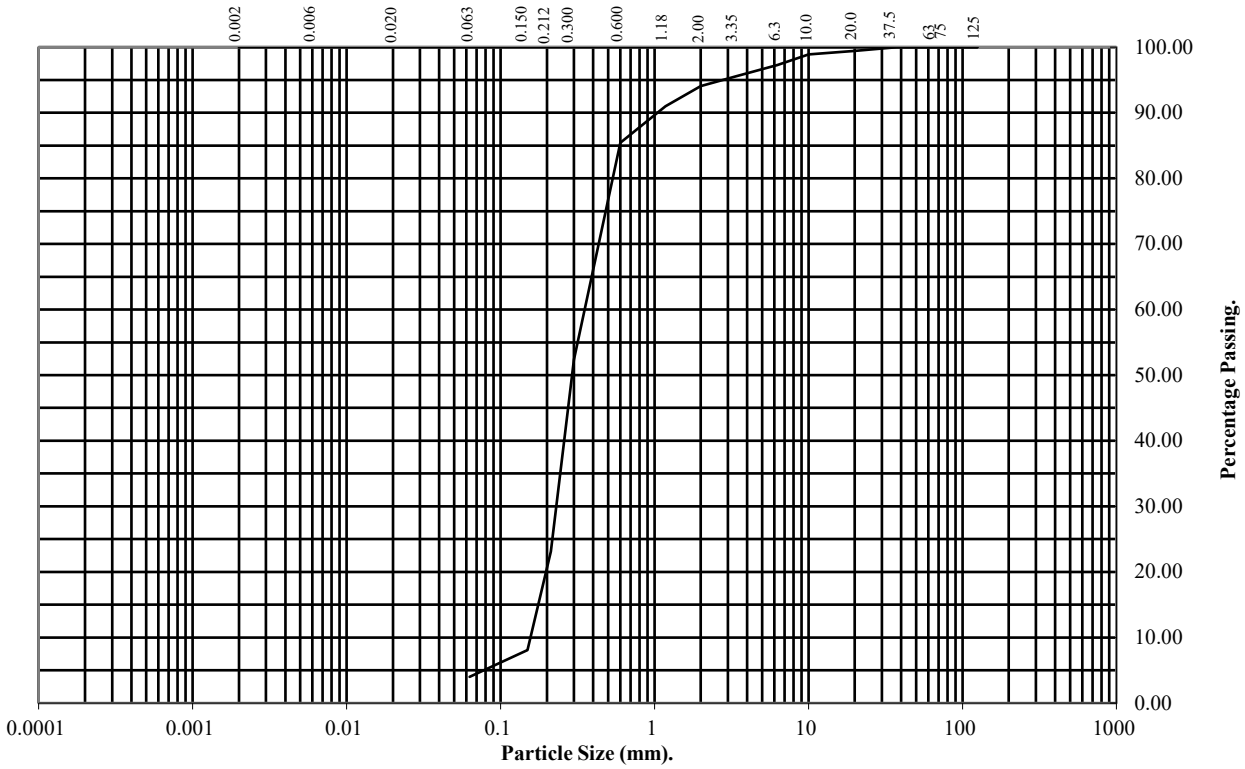
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TP215 **Top Depth (m):** 0.80

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

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	99
6.3	97
3.35	96
2	94
1.18	91
0.6	85
0.3	52
0.212	23
0.15	8
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	90
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

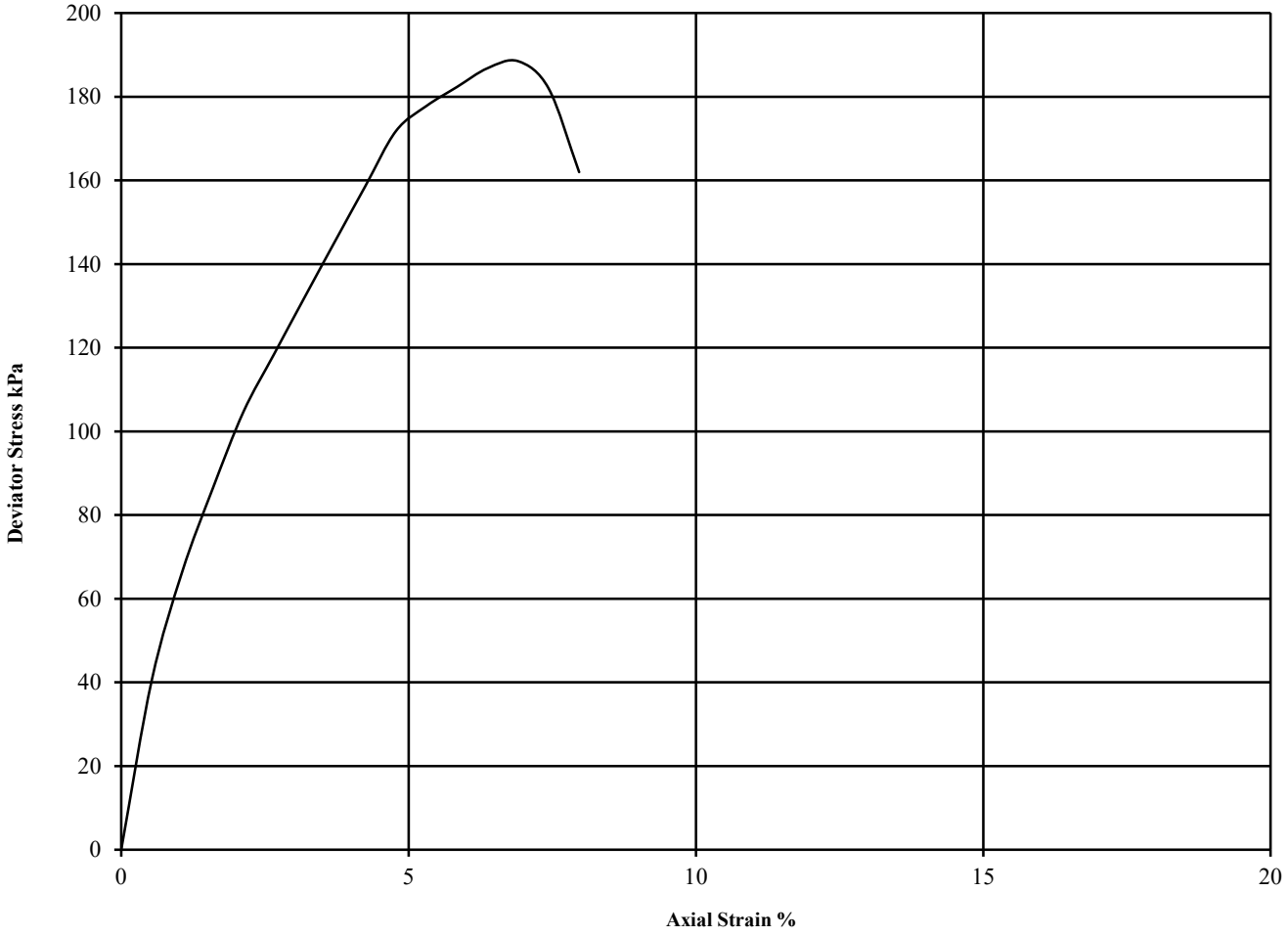
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **WS113** **Top Depth (m):** **1.50**

Sample Number: **Base Depth (m):** **2.00**

Sample Type **U100**



Diameter (mm):		85	Height (mm):		160	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.43 See summary of soil descriptions
1	24	1.96	1.58	35	188	94	6.9	Brittle	

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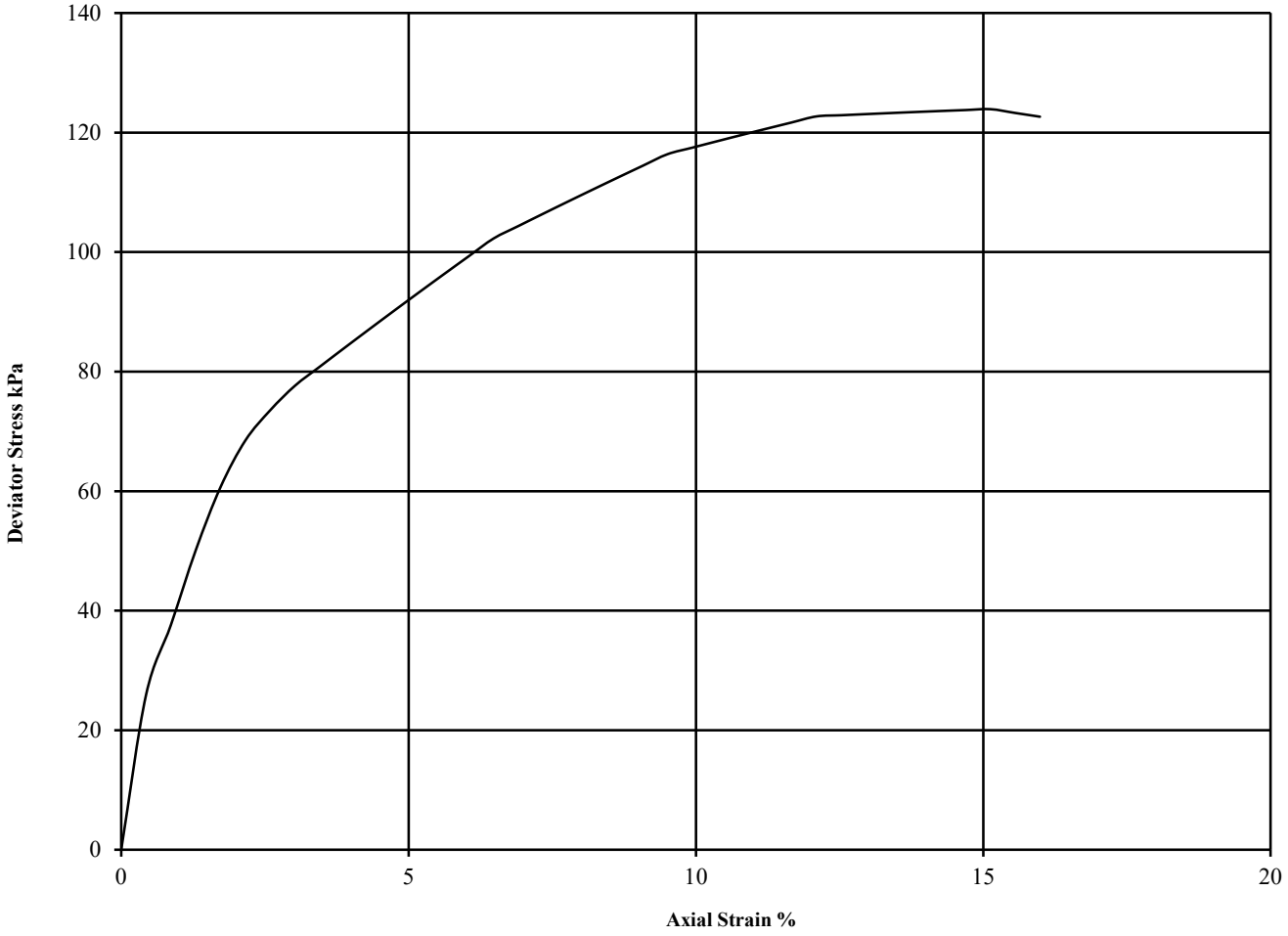
Client Ref: '001138

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**WS119**	**Top Depth (m):**	**1.50**
Sample Number:		**Base Depth (m):**	**2.00**
Sample Type	**U100**		



Diameter (mm):		70	Height (mm):		162	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.48
1	18	2.11	1.79	35	124	62	15.1	Plastic	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Peel Hall**	**Contract No:** PSL22/2345 **Client Ref:** '001138

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

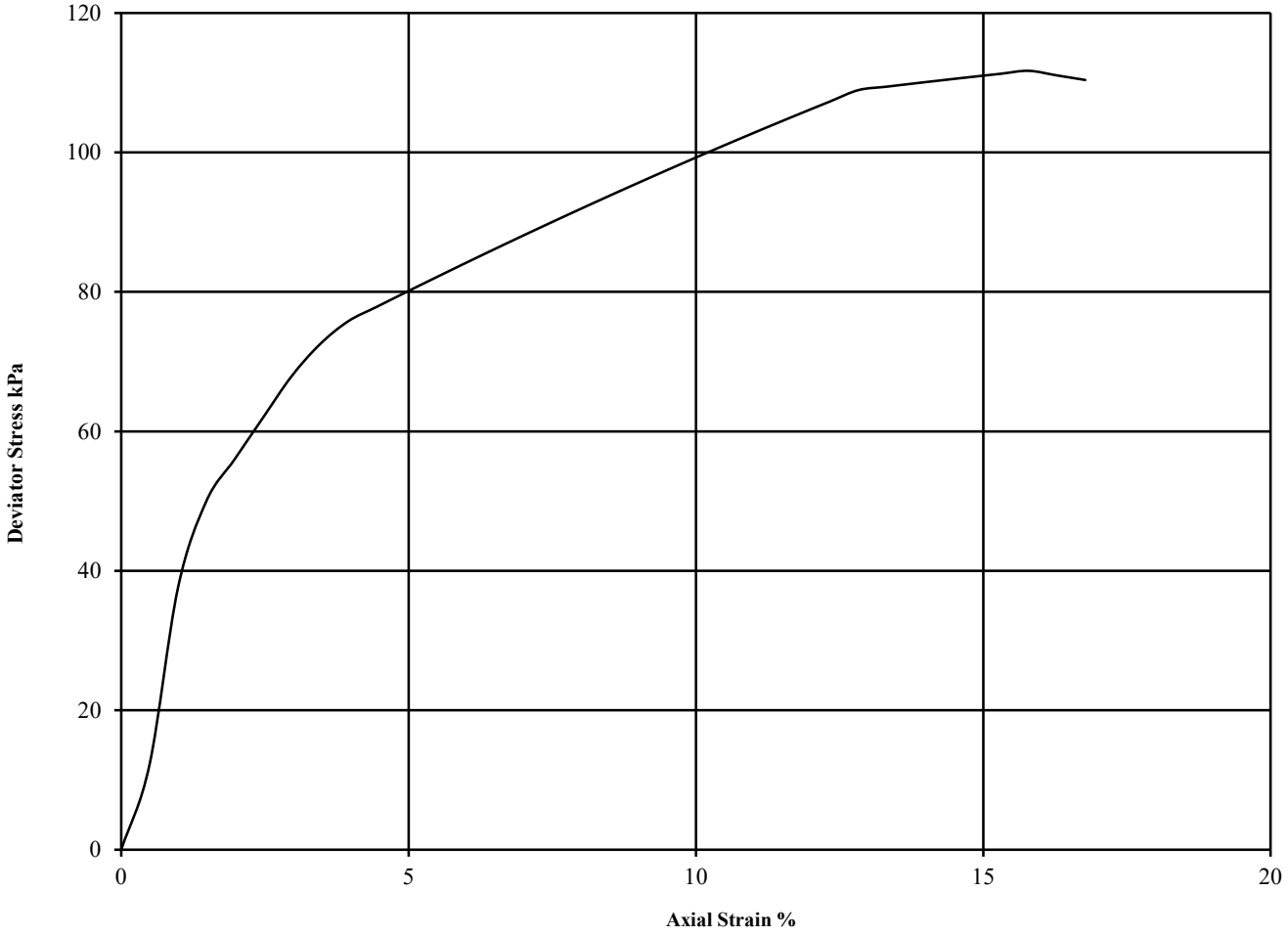
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **WS122** **Top Depth (m):** **2.50**

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

Sample Type **U100**



Diameter (mm):		75	Height (mm):		152	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.45
1	30	1.88	1.45	55	112	56	15.8	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Peel Hall

Contract No: **PSL22/2345**

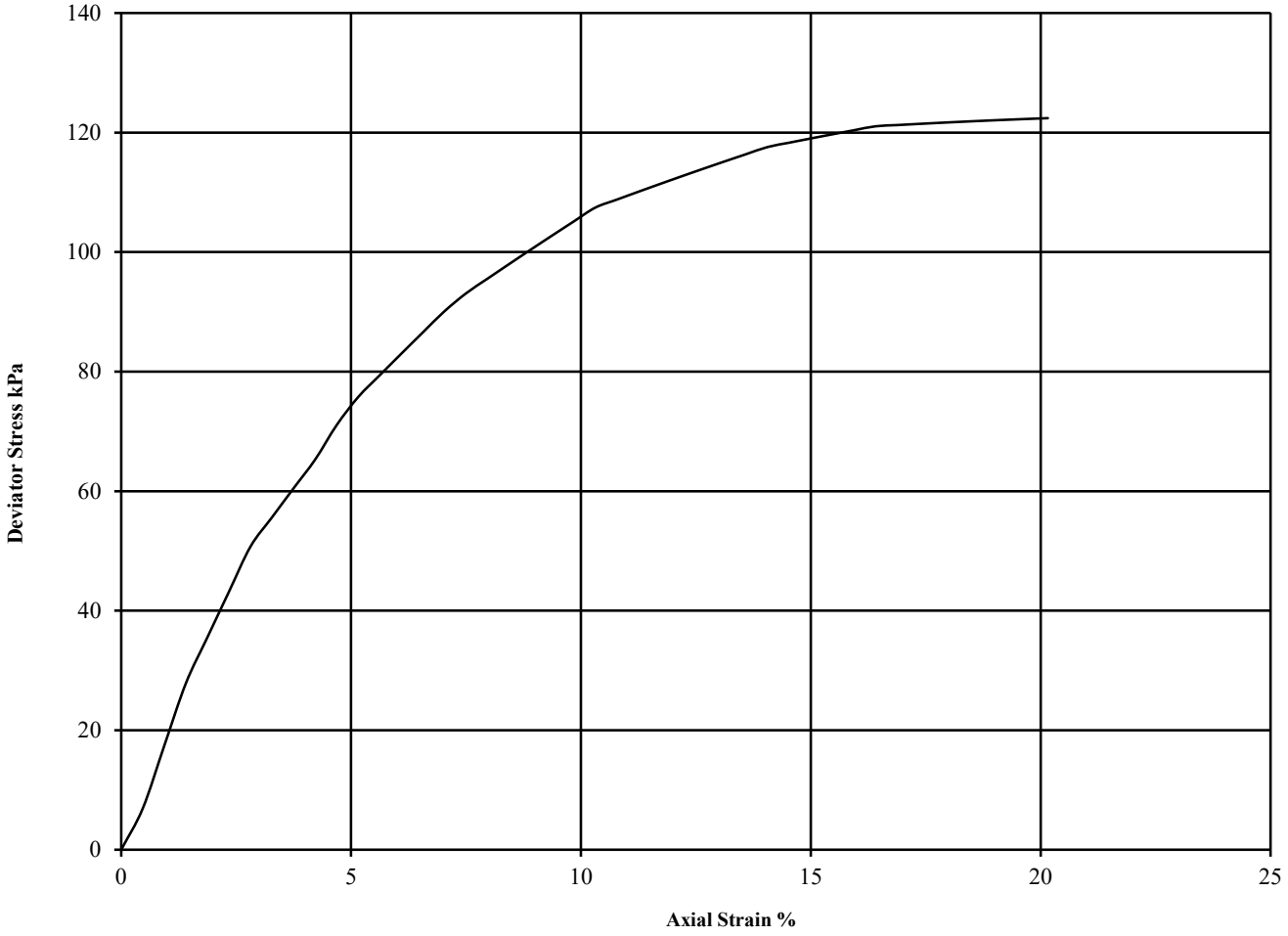
Client Ref: **'001138**

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**WS205**	**Top Depth (m):**	**2.50**
Sample Number:		**Base Depth (m):**	**3.00**
Sample Type	**U100**		



Diameter (mm):		75	Height (mm):		160	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.43
1	13	2.13	1.88	55	122	61	20.2	Plastic	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Peel Hall**	**Contract No:** PSL22/2345 **Client Ref:** 001138

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

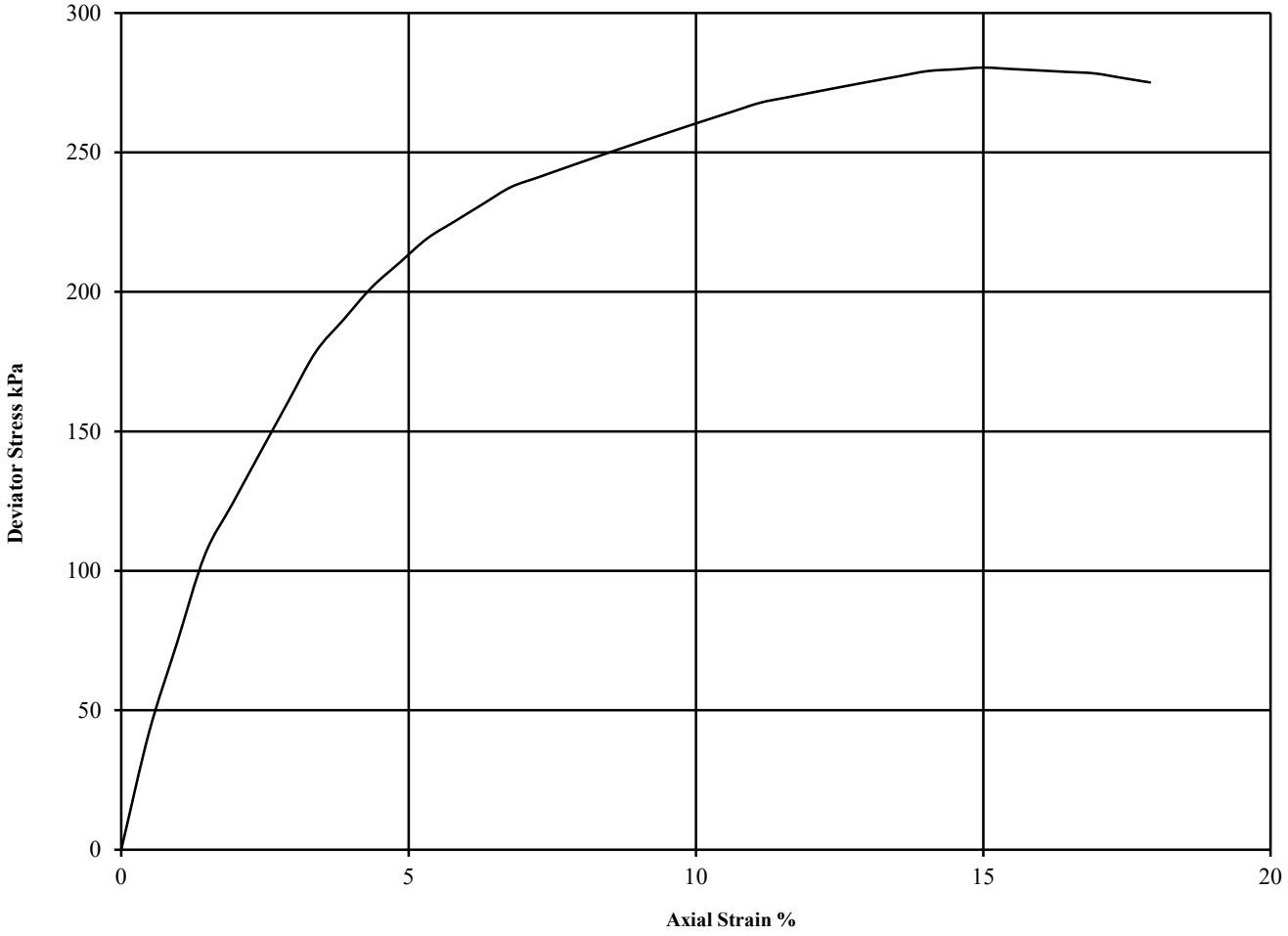
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **WS216** **Top Depth (m):** **2.50**

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

Sample Type **U100**



Diameter (mm):		75	Height (mm):		155	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.45
1	13	2.17	1.92	55	280	140	15.0	Intermediate	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Peel Hall

Contract No: PSL22/2345

Client Ref: 001138

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

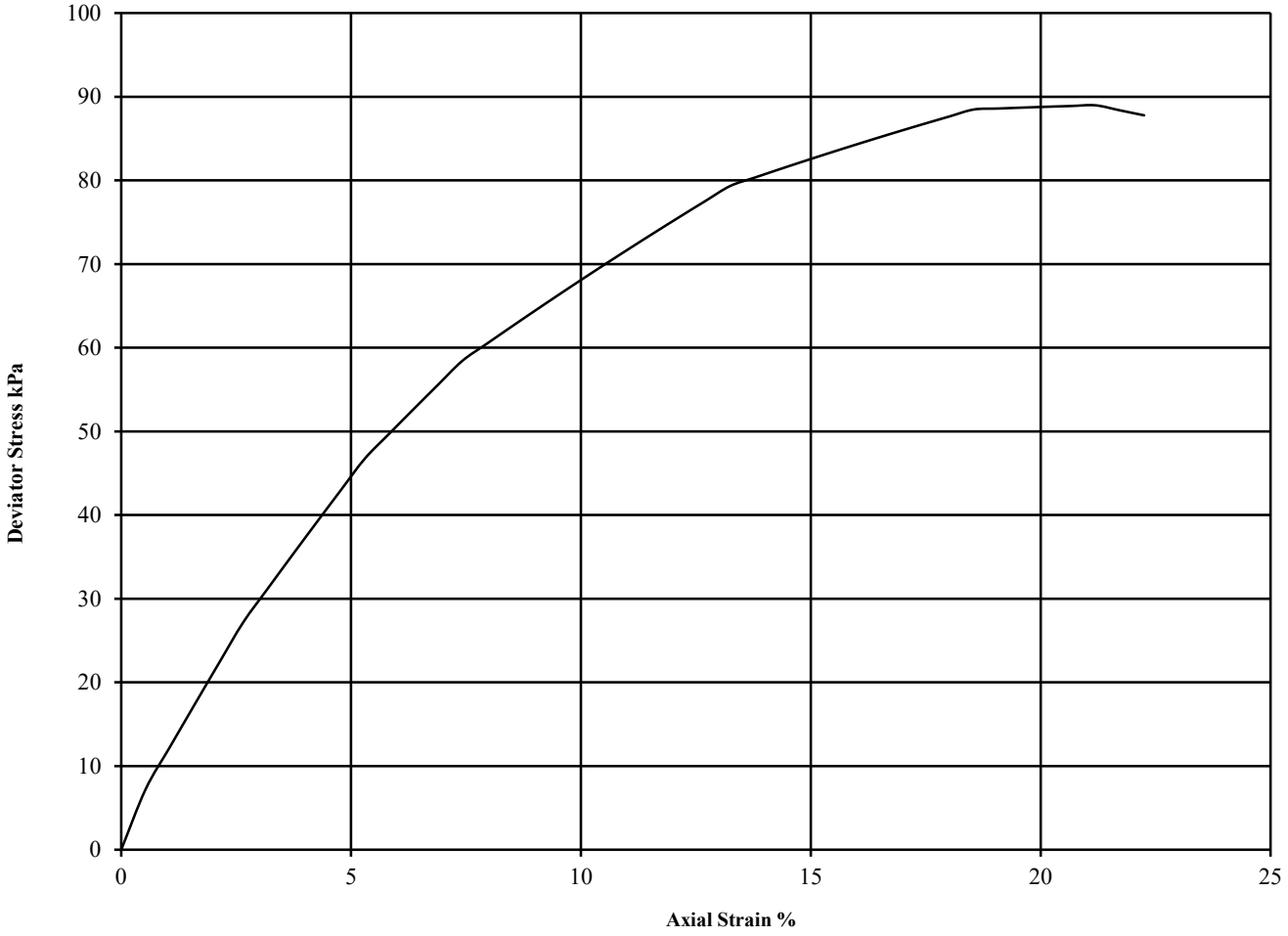
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **WS221** **Top Depth (m):** **0.50**

Sample Number: **Base Depth (m):** **1.00**

Sample Type **U100**



Diameter (mm):		80	Height (mm):		151	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.41
1	35	1.89	1.40	15	89	44	21.2	Plastic	See summary of soil descriptions

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Client Ref: **001138**

ONE DIMENSIONAL CONSOLIDATION TEST

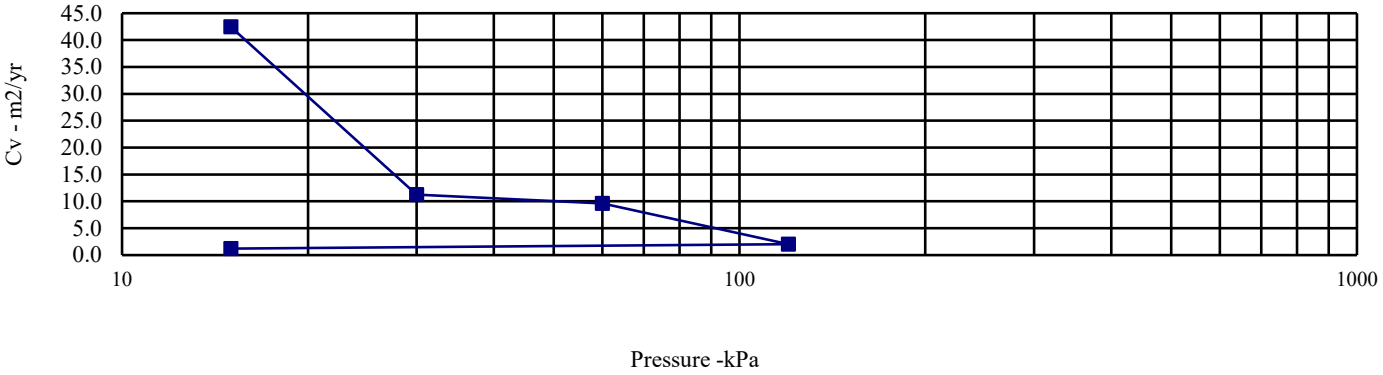
BS 1377: Part 5: 1990: Clause 3

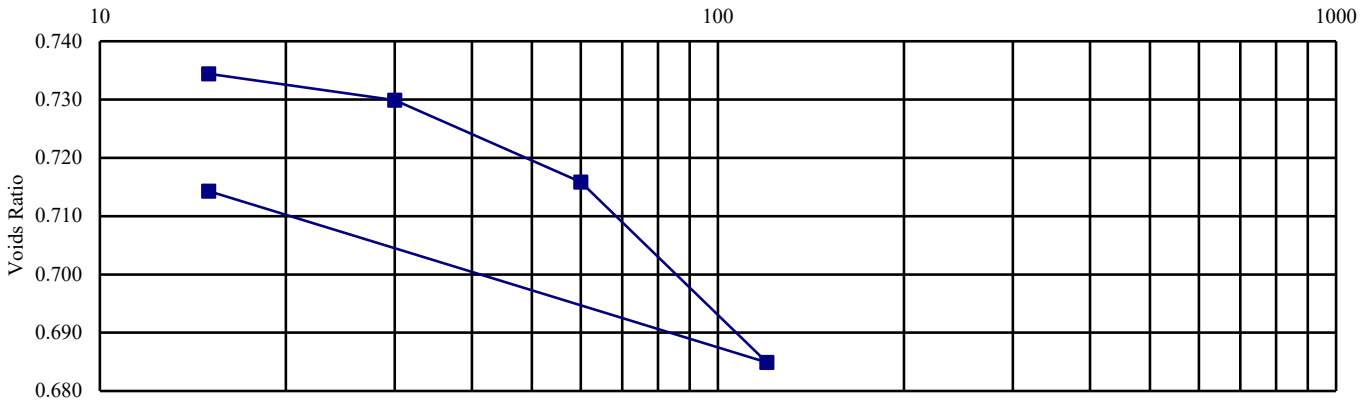
Hole Number: **WS208** **Top Depth (m):** **0.50**

Sample Number: **Base Depth (m) :** **1.00**

Sample Type: **U100**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	28						
Bulk Density (Mg/m3):	1.95	0	15	0.259	42.459	Method used to	
Dry Density (Mg/m3):	1.52	15	30	0.173	11.225	determine CV:	T90
Voids Ratio:	0.741	30	60	0.271	9.591	Nominal temperature	
Degree of saturation:	99.9	60	120	0.301	2.045	during test ' C:	20
Height (mm):	20.08	120	15	0.166	1.209	Remarks:	
Diameter (mm)	75.06					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**Peel Hall**	**Contract No:** PSL22/2345 **Client Ref:** 001138

ONE DIMENSIONAL CONSOLIDATION TEST

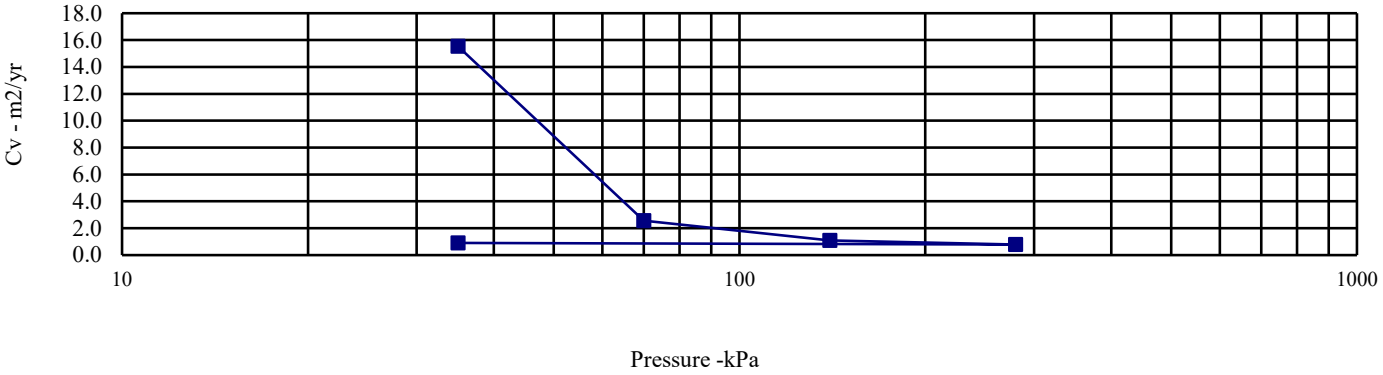
BS 1377: Part 5: 1990: Clause 3

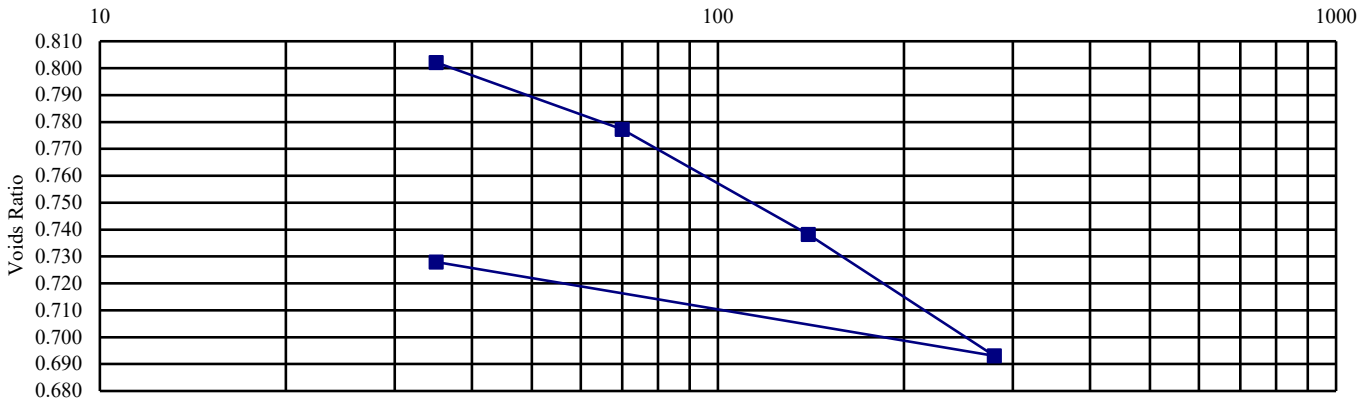
Hole Number: **WS115** **Top Depth (m):** **1.50**

Sample Number: **Base Depth (m) :** **2.00**

Sample Type: **U100**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	33						
Bulk Density (Mg/m3):	1.92	0	35	0.496	15.538	Method used to	
Dry Density (Mg/m3):	1.44	35	70	0.394	2.554	determine CV:	T90
Voids Ratio:	0.834	70	140	0.314	1.104	Nominal temperature	
Degree of saturation:	105.0	140	280	0.186	0.787	during test ' C:	20
Height (mm):	20.06	280	35	0.084	0.905	Remarks:	
Diameter (mm)	75.08					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**Peel Hall**	**Contract No:** PSL22/2345 **Client Ref:** 001138

APPENDIX IX
SOAKAWAY PERMEABILITY TEST CERTIFICATES

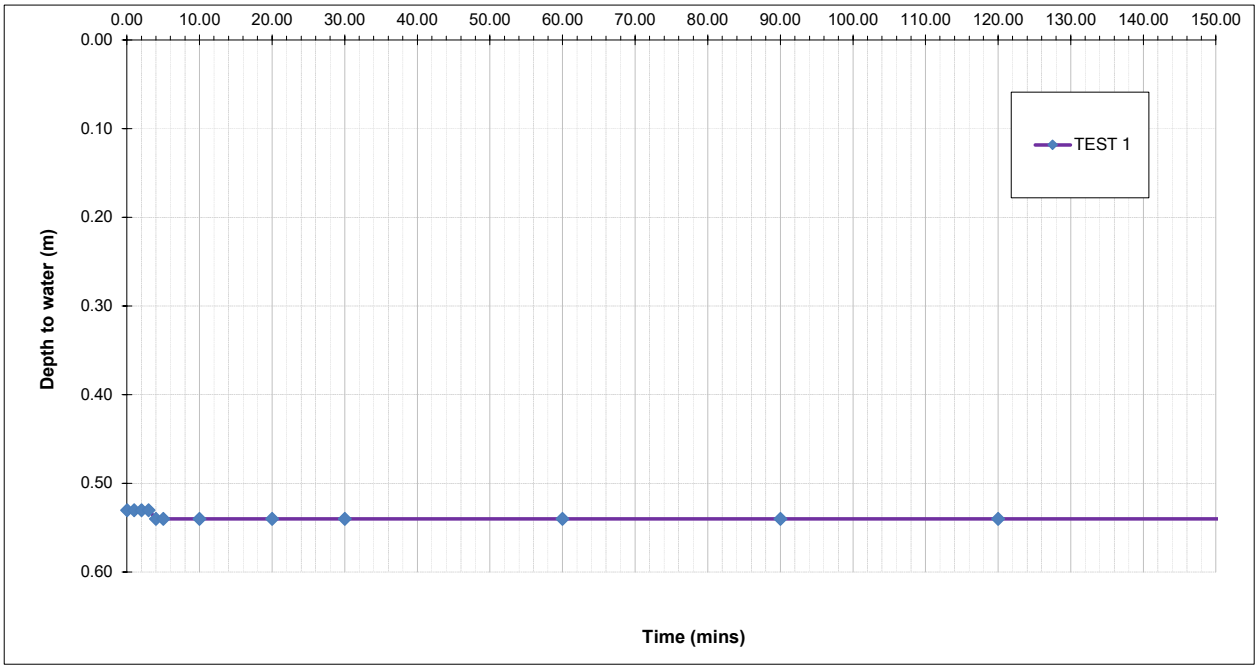
Site:	Peel Hall		**Trial Pit Number:**	SA101	
Job Number:	15-740		**Length:**	2.50	m
Date of Test:	21/03/2022		**Width:**	0.50	m
			Depth:	2.00	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.53				
1.00	0.53				
2.00	0.53				
3.00	0.53				
4.00	0.54				
5.00	0.54				
10.00	0.54				
20.00	0.54				
30.00	0.54				
60.00	0.54				
90.00	0.54				
120.00	0.54				
240.00	0.54				
300.00	0.54				
360.00	0.54				
420.00	0.54				
480.00	0.54				
1440.00	0.54				

Effective Storage Depth	m	1.47		
75% Effective Storage Depth	m	1.10		
(i.e. depth below GL)	m	0.90		
25% Effective Storage Depth	m	0.37		
(i.e. depth below GL)	m	1.63		
Effective Storage Depth 75%-25%	m	0.74		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.92		
a (50%)	m2	5.66		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



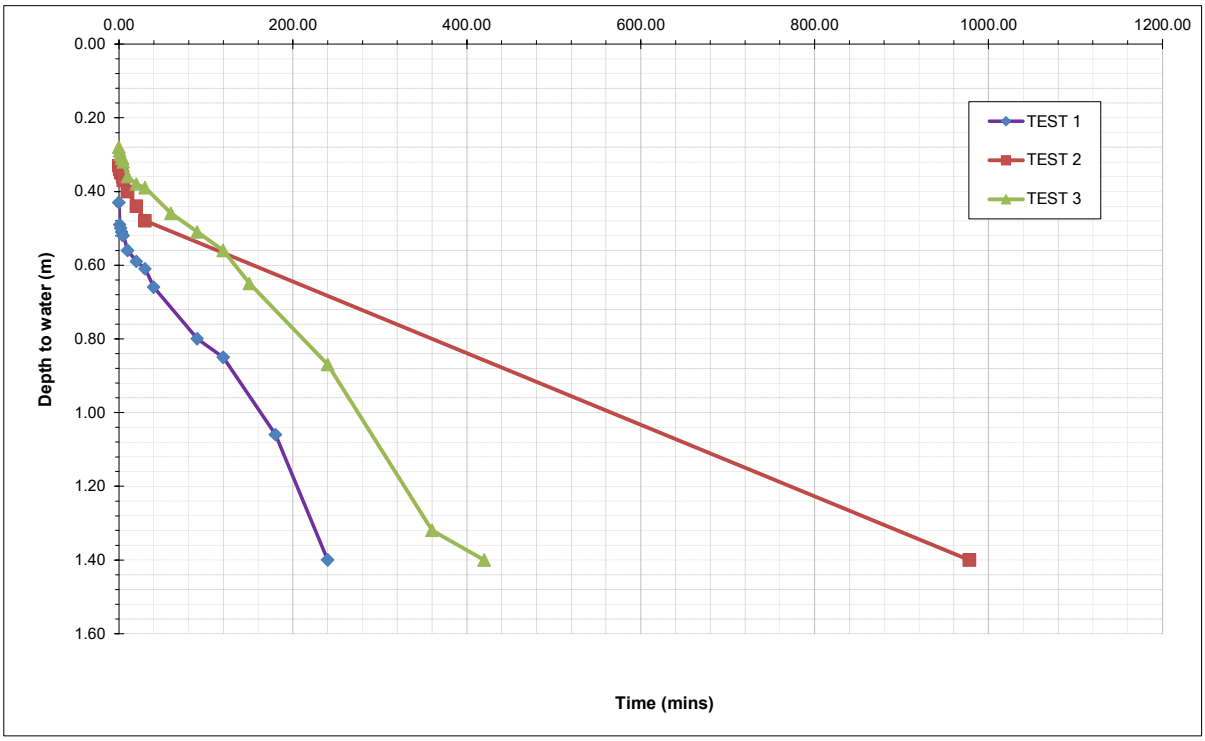
Site:	Peel Hall		**Trial Pit Number:**	SA102	
Job Number:	15-740		**Length:**	2.20	m
Date of Test:	21/03/2022		**Width:**	0.50	m
			Depth:	1.40	m
			Groundwater Level:		m

Three tests completed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.43	0.00	0.33	0.00	0.28
1.00	0.49	1.00	0.34	1.00	0.29
2.00	0.5	2.00	0.35	2.00	0.30
3.00	0.51	3.00	0.35	3.00	0.31
4.00	0.52	4.00	0.36	4.00	0.31
5.00	0.52	5.00	0.37	5.00	0.32
10.00	0.56	10.00	0.4	10.00	0.36
20.00	0.59	20.00	0.44	20.00	0.38
30.00	0.61	30.00	0.48	30.00	0.39
40.00	0.66	978.00	1.4	60.00	0.46
90.00	0.8			90.00	0.51
120.00	0.85			120.00	0.56
180.00	1.06			150.00	0.65
240.00	1.4			240.00	0.87
				360.00	1.32
				420.00	1.40

Effective Storage Depth	m	0.97	1.07	1.12
75% Effective Storage Depth	m	0.73	0.80	0.84
(i.e. depth below GL)	m	0.67	0.60	0.56
25% Effective Storage Depth	m	0.24	0.27	0.28
(i.e. depth below GL)	m	1.16	1.13	1.12
Effective Storage Depth 75%-25%	m	0.49	0.54	0.56
Time to fall to 75% effective depth	mins	44.00	155.00	120.00
Time to fall to 25% effective depth	mins	199.00	700.00	306.00
V (75%-25%)	m3	0.53	0.59	0.62
a (50%)	m2	3.72	3.99	4.12
t (75%-25%)	mins	155.00	545.00	186.00
SOIL INFILTRATION RATE	m/s	**1.54E-05**	**4.51E-06**	**1.34E-05**

DESIGN SOIL INFILTRATION RATE, f	**1.54E-05**



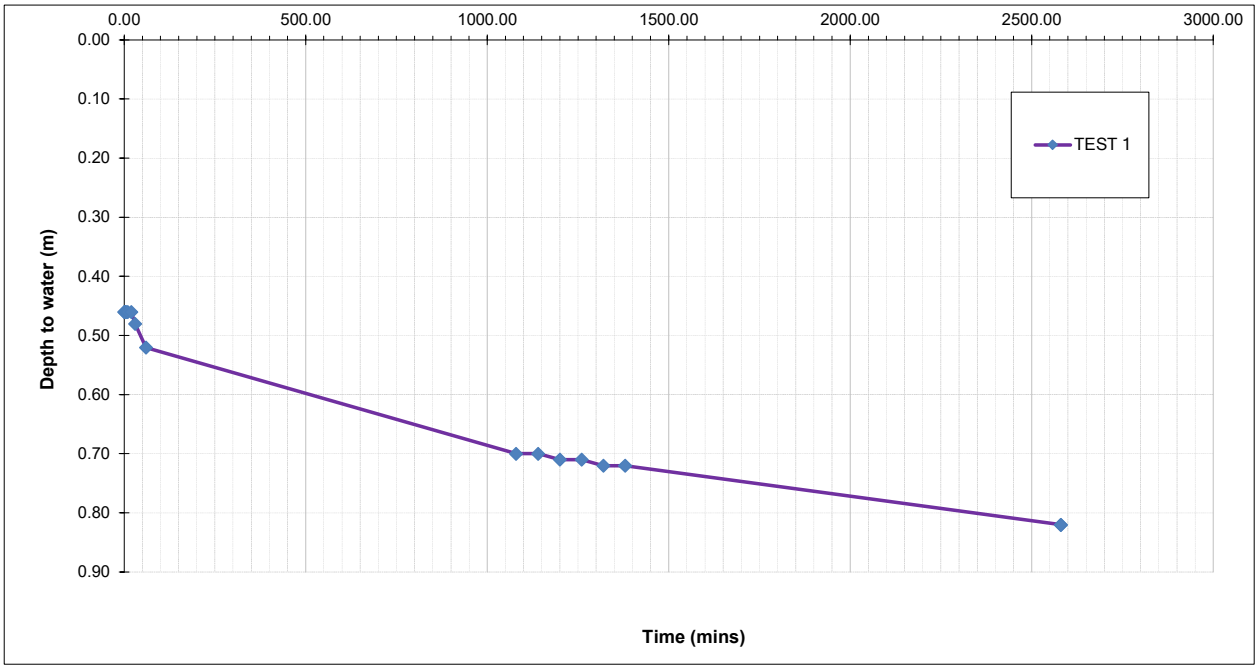
Site:	Peel Hall		**Trial Pit Number:**	SA103
Job Number:	15-740		**Length:**	2.00 m
Date of Test:	21/03/2022		**Width:**	0.60 m
			Depth:	1.80 m
			Groundwater Level:	m

Test did not reach the 25% effective storage depth within 43 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.46				
1.00	0.46				
2.00	0.46				
3.00	0.46				
4.00	0.46				
5.00	0.46				
10.00	0.46				
20.00	0.46				
30.00	0.48				
60.00	0.52				
1080.00	0.7				
1140.00	0.70				
1200.00	0.71				
1260.00	0.71				
1320.00	0.72				
1380.00	0.72				
2580.00	0.82				
2580.00	0.82				

Effective Storage Depth	m	1.34		
75% Effective Storage Depth	m	1.01		
(i.e. depth below GL)	m	0.80		
25% Effective Storage Depth	m	0.34		
(i.e. depth below GL)	m	1.47		
Effective Storage Depth 75%-25%	m	0.67		
Time to fall to 75% effective depth	mins	2325.00		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.80		
a (50%)	m2	4.68		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



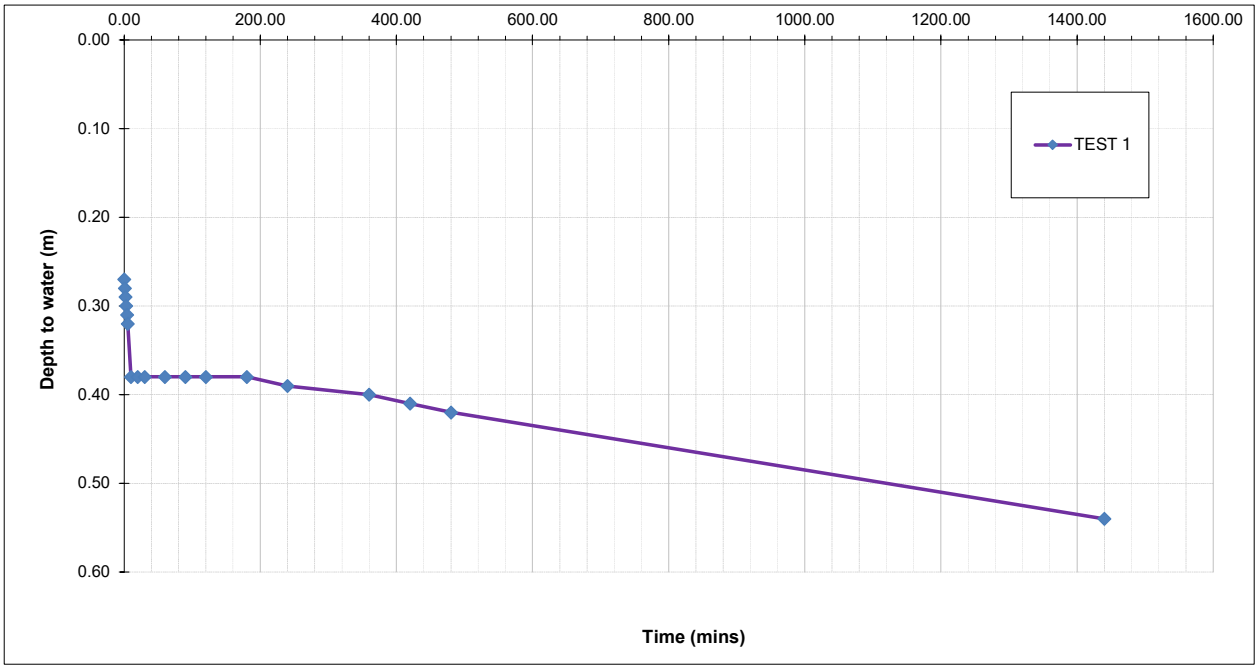
Site:	Peel Hall		**Trial Pit Number:**	SA104
Job Number:	15-740		**Length:**	2.20 m
Date of Test:	22/03/2022		**Width:**	0.65 m
			Depth:	1.60 m
			Groundwater Level:	m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.27				
1.00	0.28				
2.00	0.29				
3.00	0.3				
4.00	0.31				
5.00	0.32				
10.00	0.38				
20.00	0.38				
30.00	0.38				
60.00	0.38				
90.00	0.38				
120.00	0.38				
180.00	0.38				
240.00	0.39				
360.00	0.40				
420.00	0.41				
480.00	0.42				
1440.00	0.54				

Effective Storage Depth	m	1.33		
75% Effective Storage Depth	m	1.00		
(i.e. depth below GL)	m	0.60		
25% Effective Storage Depth	m	0.33		
(i.e. depth below GL)	m	1.27		
Effective Storage Depth 75%-25%	m	0.67		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.95		
a (50%)	m2	5.22		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



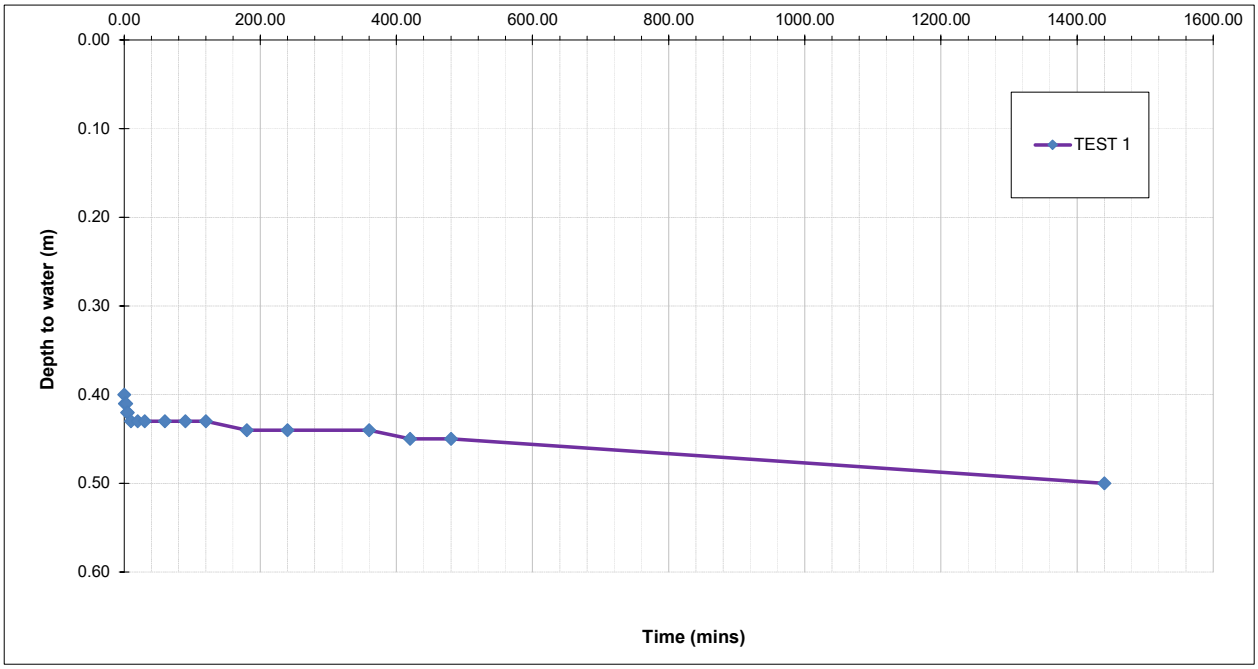
Site:	Peel Hall		**Trial Pit Number:**	SA105	
Job Number:	15-740		**Length:**	2.10	m
Date of Test:	22/03/2022		**Width:**	0.70	m
			Depth:	2.00	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.40				
1.00	0.41				
2.00	0.41				
3.00	0.41				
4.00	0.42				
5.00	0.42				
10.00	0.43				
20.00	0.43				
30.00	0.43				
60.00	0.43				
90.00	0.43				
120.00	0.43				
180.00	0.44				
240.00	0.44				
360.00	0.44				
420.00	0.45				
480.00	0.45				
1440.00	0.50				

Effective Storage Depth	m	1.60		
75% Effective Storage Depth	m	1.20		
(i.e. depth below GL)	m	0.80		
25% Effective Storage Depth	m	0.40		
(i.e. depth below GL)	m	1.60		
Effective Storage Depth 75%-25%	m	0.80		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.18		
a (50%)	m2	5.95		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f **N/A**



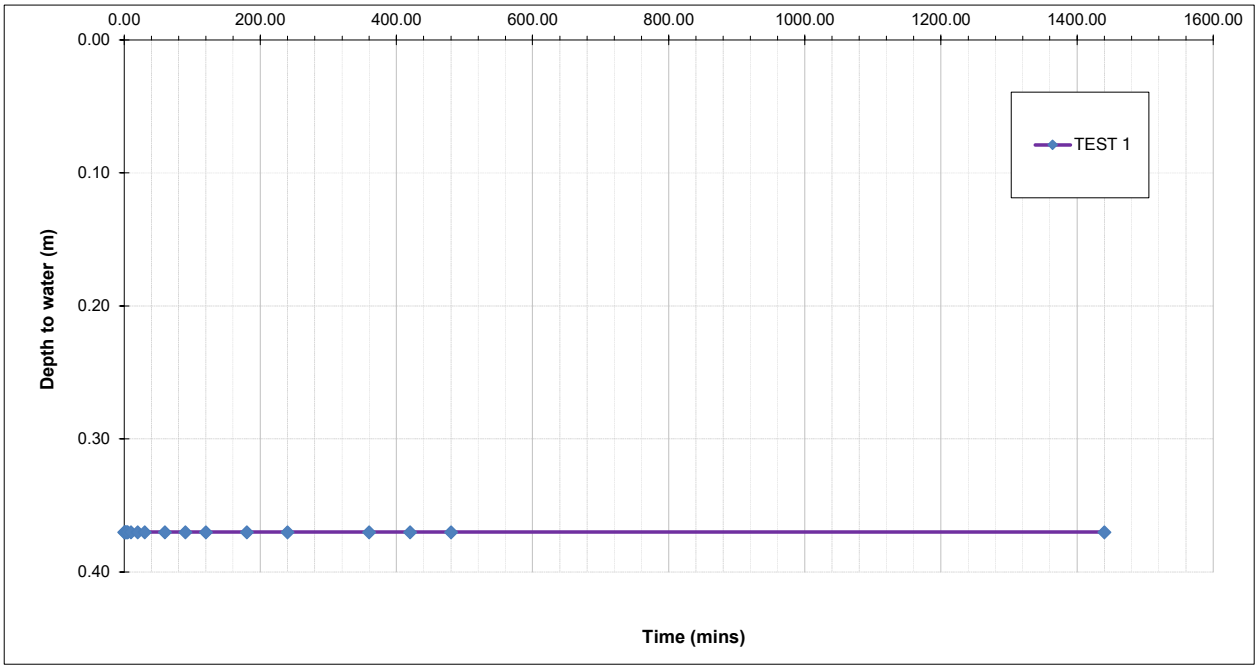
Site:	Peel Hall		**Trial Pit Number:**	SA106	
Job Number:	15-740		**Length:**	2.00	m
Date of Test:	22/03/2022		**Width:**	0.80	m
			Depth:	1.30	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.37				
1.00	0.37				
2.00	0.37				
3.00	0.37				
4.00	0.37				
5.00	0.37				
10.00	0.37				
20.00	0.37				
30.00	0.37				
60.00	0.37				
90.00	0.37				
120.00	0.37				
180.00	0.37				
240.00	0.37				
360.00	0.37				
420.00	0.37				
480.00	0.37				
1440.00	0.37				

Effective Storage Depth	m	0.93		
75% Effective Storage Depth	m	0.70		
(i.e. depth below GL)	m	0.60		
25% Effective Storage Depth	m	0.23		
(i.e. depth below GL)	m	1.07		
Effective Storage Depth 75%-25%	m	0.47		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.74		
a (50%)	m2	4.20		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



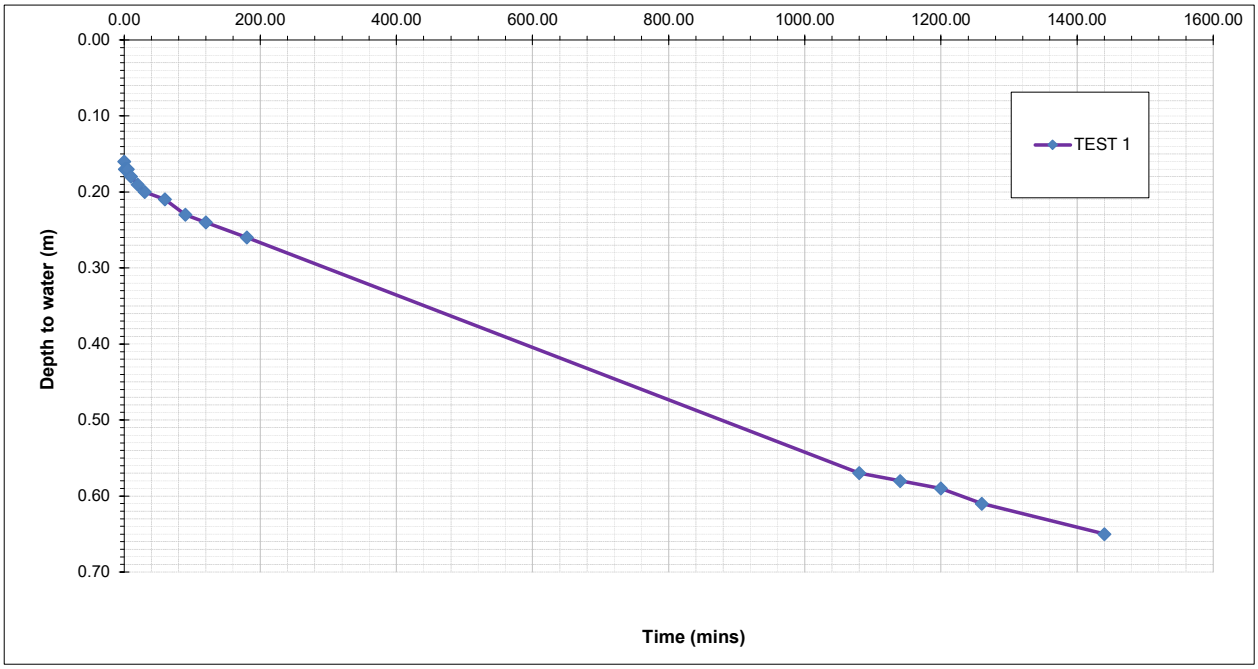
Site:	Peel Hall		**Trial Pit Number:**	SA107	
Job Number:	15-740		**Length:**	2.00	m
Date of Test:	23/03/2022		**Width:**	0.65	m
			Depth:	1.50	m
			Groundwater Level:		m

Test did not reach the 25% effective storage depth within 43 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.16				
1.00	0.17				
2.00	0.17				
3.00	0.17				
4.00	0.17				
5.00	0.17				
10.00	0.18				
20.00	0.19				
30.00	0.2				
60.00	0.21				
90.00	0.23				
120.00	0.24				
180.00	0.26				
1080.00	0.57				
1140.00	0.58				
1200.00	0.59				
1260.00	0.61				
1440.00	0.65				

Effective Storage Depth	m	1.34		
75% Effective Storage Depth	m	1.01		
(i.e. depth below GL)	m	0.50		
25% Effective Storage Depth	m	0.34		
(i.e. depth below GL)	m	1.17		
Effective Storage Depth 75%-25%	m	0.67		
Time to fall to 75% effective depth	mins	840.00		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.87		
a (50%)	m2	4.85		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f **N/A**



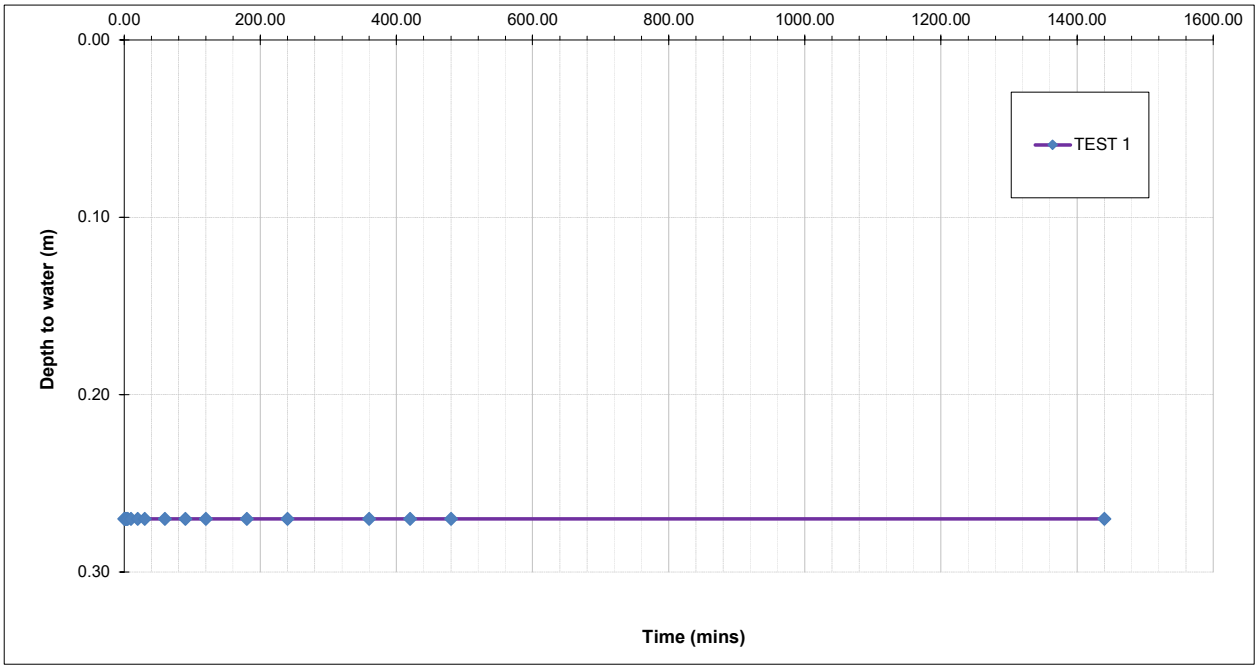
Site:	Peel Hall		**Trial Pit Number:**	SA108
Job Number:	15-740		**Length:**	2.20 m
Date of Test:	23/03/2022		**Width:**	0.70 m
			Depth:	1.50 m
			Groundwater Level:	m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.27				
1.00	0.27				
2.00	0.27				
3.00	0.27				
4.00	0.27				
5.00	0.27				
10.00	0.27				
20.00	0.27				
30.00	0.27				
60.00	0.27				
90.00	0.27				
120.00	0.27				
180.00	0.27				
240.00	0.27				
360.00	0.27				
420.00	0.27				
480.00	0.27				
1440.00	0.27				

Effective Storage Depth	m	1.23		
75% Effective Storage Depth	m	0.92		
(i.e. depth below GL)	m	0.58		
25% Effective Storage Depth	m	0.31		
(i.e. depth below GL)	m	1.19		
Effective Storage Depth 75%-25%	m	0.62		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.95		
a (50%)	m2	5.11		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



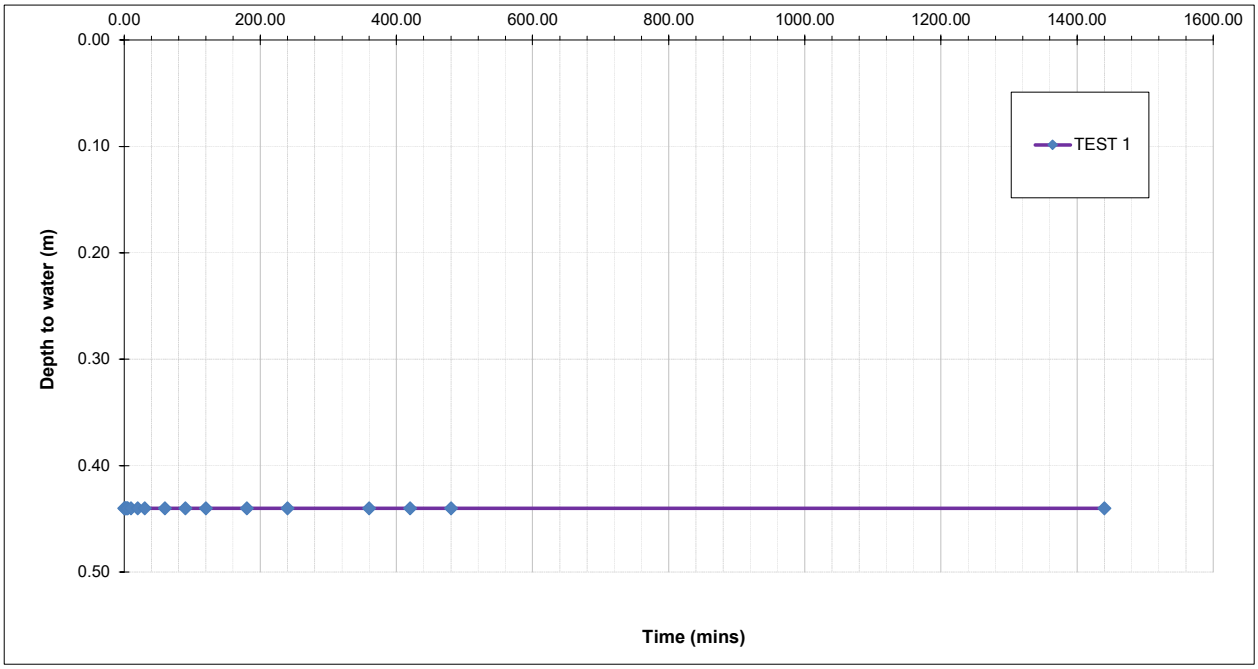
Site:	Peel Hall		**Trial Pit Number:**	SA109	
Job Number:	15-740		**Length:**	1.70	m
Date of Test:	23/03/2022		**Width:**	0.70	m
			Depth:	1.70	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.44				
1.00	0.44				
2.00	0.44				
3.00	0.44				
4.00	0.44				
5.00	0.44				
10.00	0.44				
20.00	0.44				
30.00	0.44				
60.00	0.44				
90.00	0.44				
120.00	0.44				
180.00	0.44				
240.00	0.44				
360.00	0.44				
420.00	0.44				
480.00	0.44				
1440.00	0.44				

Effective Storage Depth	m	1.26		
75% Effective Storage Depth	m	0.95		
(i.e. depth below GL)	m	0.76		
25% Effective Storage Depth	m	0.32		
(i.e. depth below GL)	m	1.39		
Effective Storage Depth 75%-25%	m	0.63		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.75		
a (50%)	m2	4.21		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



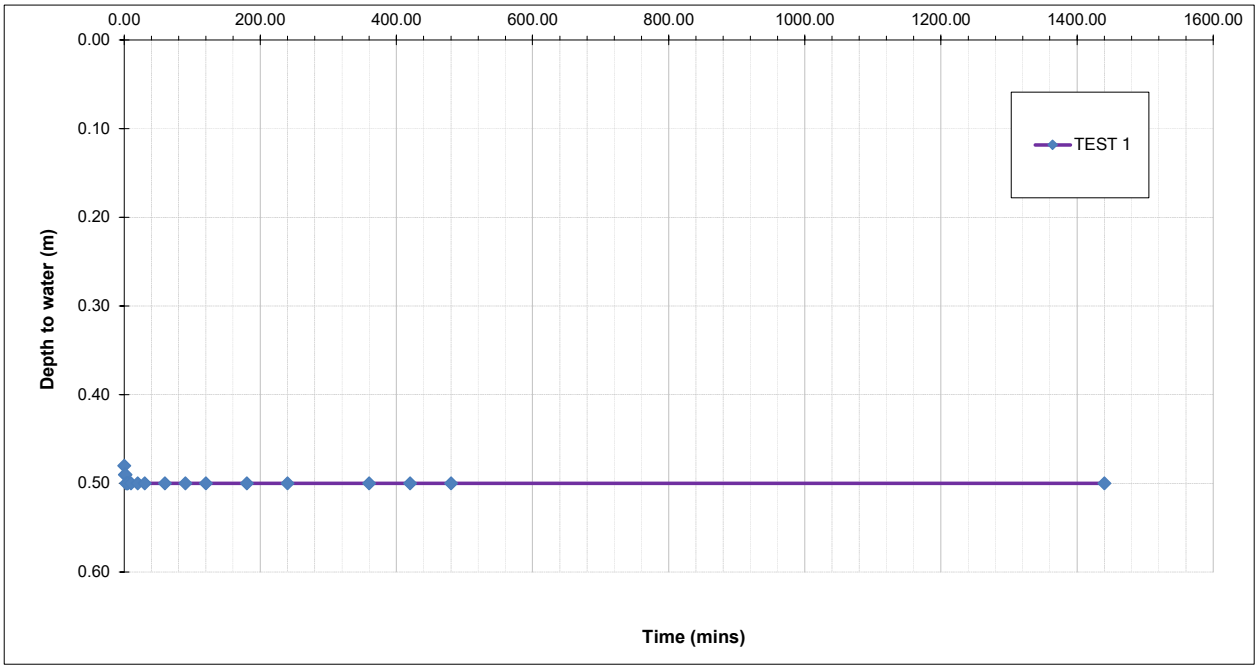
Site:	Peel Hall		**Trial Pit Number:**	SA110	
Job Number:	15-740		**Length:**	1.80	m
Date of Test:	24/03/2022		**Width:**	0.70	m
			Depth:	1.80	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.48				
1.00	0.49				
2.00	0.49				
3.00	0.5				
4.00	0.5				
5.00	0.5				
10.00	0.5				
20.00	0.5				
30.00	0.5				
60.00	0.5				
90.00	0.5				
120.00	0.50				
180.00	0.5				
240.00	0.5				
360.00	0.50				
420.00	0.50				
480.00	0.50				
1440.00	0.50				

Effective Storage Depth	m	1.32		
75% Effective Storage Depth	m	0.99		
(i.e. depth below GL)	m	0.81		
25% Effective Storage Depth	m	0.33		
(i.e. depth below GL)	m	1.47		
Effective Storage Depth 75%-25%	m	0.66		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.83		
a (50%)	m2	4.56		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



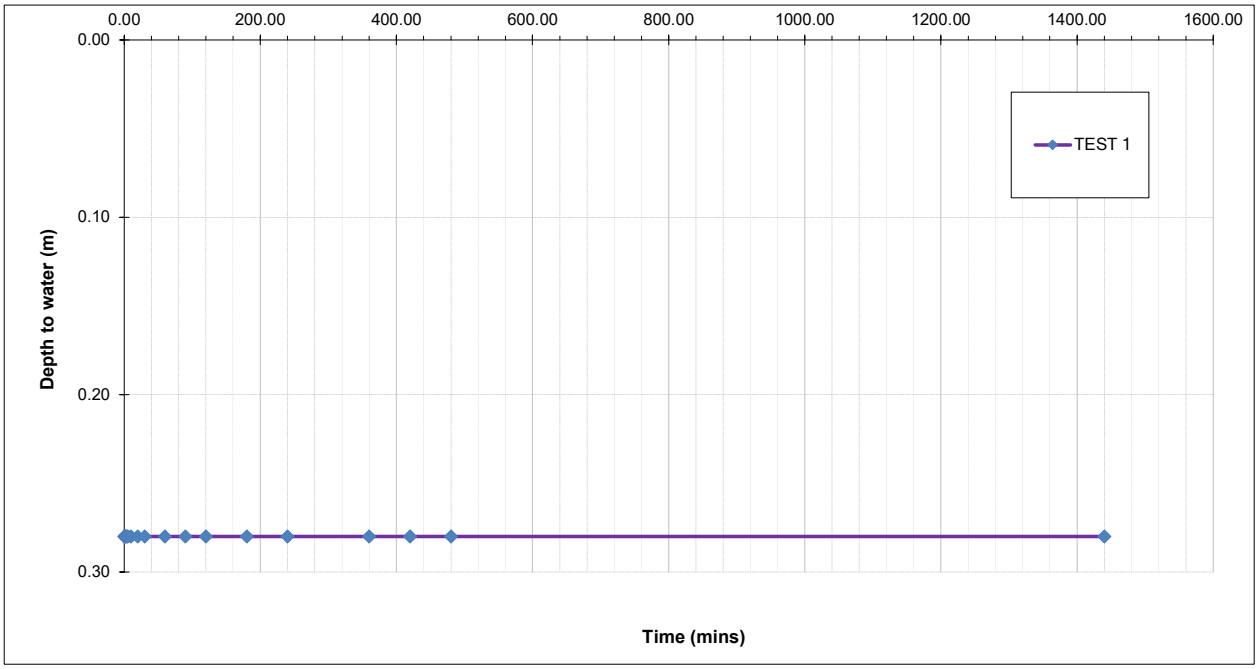
Site:	Peel Hall		**Trial Pit Number:**	SA111	
Job Number:	15-740		**Length:**	1.70	m
Date of Test:	24/03/2022		**Width:**	0.70	m
			Depth:	1.40	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.28				
1.00	0.28				
2.00	0.28				
3.00	0.28				
4.00	0.28				
5.00	0.28				
10.00	0.28				
20.00	0.28				
30.00	0.28				
60.00	0.28				
90.00	0.28				
120.00	0.28				
180.00	0.28				
240.00	0.28				
360.00	0.28				
420.00	0.28				
480.00	0.28				
1440.00	0.28				

Effective Storage Depth	m	1.12		
75% Effective Storage Depth	m	0.84		
(i.e. depth below GL)	m	0.56		
25% Effective Storage Depth	m	0.28		
(i.e. depth below GL)	m	1.12		
Effective Storage Depth 75%-25%	m	0.56		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.67		
a (50%)	m2	3.88		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



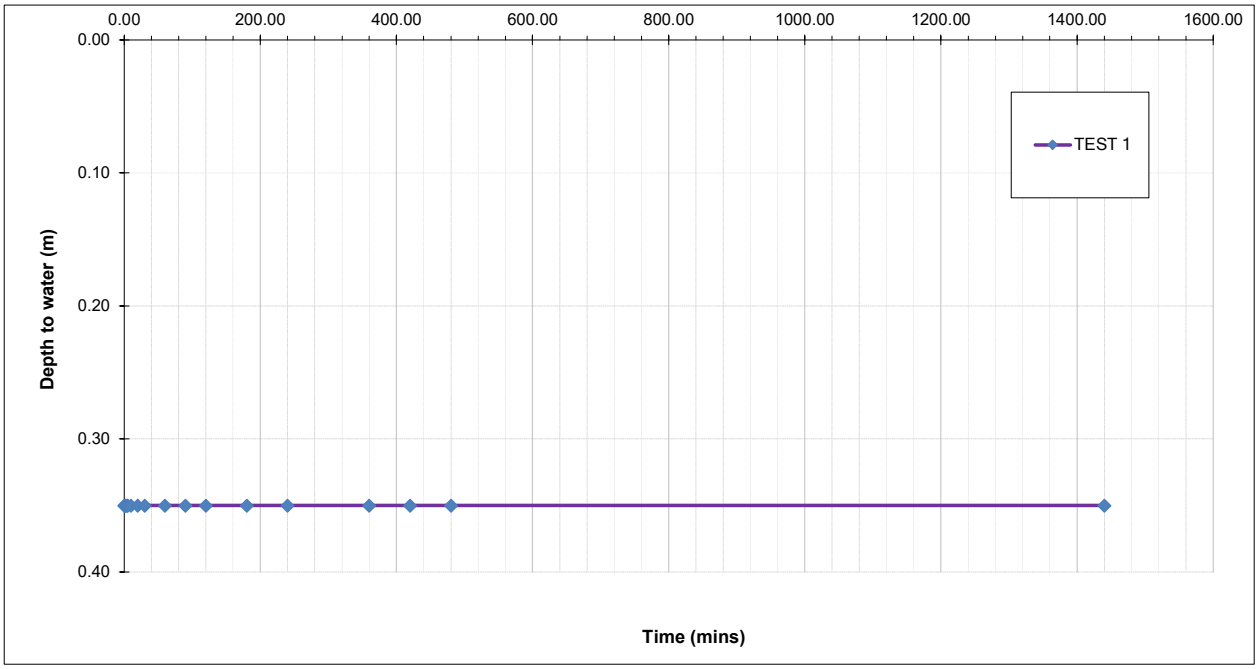
Site:	Peel Hall		**Trial Pit Number:**	SA112	
Job Number:	15-740		**Length:**	1.80	m
Date of Test:	21/03/2022		**Width:**	0.80	m
			Depth:	1.70	m
			Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth within 24 hours and therefore test has been terminated. An infiltration rate has not been able to be calculated

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.35				
1.00	0.35				
2.00	0.35				
3.00	0.35				
4.00	0.35				
5.00	0.35				
10.00	0.35				
20.00	0.35				
30.00	0.35				
60.00	0.35				
90.00	0.35				
120.00	0.35				
180.00	0.35				
240.00	0.35				
360.00	0.35				
420.00	0.35				
480.00	0.35				
1440.00	0.35				

Effective Storage Depth	m	1.35		
75% Effective Storage Depth	m	1.01		
(i.e. depth below GL)	m	0.69		
25% Effective Storage Depth	m	0.34		
(i.e. depth below GL)	m	1.36		
Effective Storage Depth 75%-25%	m	0.68		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.97		
a (50%)	m2	4.95		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**		

DESIGN SOIL INFILTRATION RATE, f	**N/A**



APPENDIX X
M-BAT ASSESSMENT

Metal Bioavailability Assessment Tool (M-BAT)

Back

Calculate

Clear Data

INPUT DATA											RESULTS (Copper)				RESULTS (Zinc)				RESULTS (Mn)				RESULTS (Ni)			
ID	Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l^{-1})	Measured Zn Concentration (dissolved) (µg l^{-1})	Measured Mn Concentration (dissolved) (µg l^{-1})	Measured Ni Concentration (dissolved) (µg l^{-1})	pH	DOC	Ca	Site-specific PNEC Dissolved Copper (µg l^{-1})	BioF	Bioavailable Copper Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Zinc (µg l^{-1})	BioF	Bioavailable Zinc Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Manganese (µg l^{-1})	BioF	Bioavailable Manganese Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Nickel (µg l^{-1})	BioF	Bioavailable Nickel Concentration (µg l^{-1})	Risk Characterisation Ratio
1	WS119	GROUNDWATER	06/05/2022	10	8.6	420	9.1	6.7	16.4	56	27.11	0.04	0.37	0.37	43.50	0.25	2.15	0.20	1655.52	0.07	31.20	0.25	31.15	0.13	1.17	0.29
2	WS102	GROUNDWATER	06/05/2022	15	5.9	280	10	6.7	15.5	58	26.76	0.04	0.56	0.56	41.55	0.26	1.55	0.14	1655.52	0.07	20.80	0.17	30.91	0.13	1.29	0.32
3	HOUSE STREAM	SURFACE WATER	19/04/2022	0.5	0.5	2000	3.2	7.4	18	130	60.70	0.02	0.01	0.01	60.62	0.18	0.09	0.01	701.4	0.14	350.71	2.82	36.39	0.11	0.35	0.09
4	WS121	GROUNDWATER	06/05/2022	0.8	5.8	630	2.8	7.3	5.05	130	23.02	0.04	0.03	0.03	26.56	0.41	2.38	0.22	851.26	0.14	91.03	0.74	18.02	0.22	0.62	0.16
5	WS116	GROUNDWATER	06/05/2022	0.7	4	440	3.6	7.3	4.78	130	21.65	0.05	0.03	0.03	25.99	0.42	1.68	0.15	851.26	0.14	63.58	0.52	17.62	0.23	0.82	0.20
6	WS113	GROUNDWATER	06/05/2022	1.9	4.1	21	3.1	7.3	7.24	150	34.12	0.03	0.06	0.06	31.26	0.35	1.43	0.13	851.26	0.14	3.03	0.02	21.32	0.19	0.58	0.15
7	WS107	GROUNDWATER	06/05/2022	0.8	5.5	2000	14	7.1	4.19	160	18.03	0.06	0.04	0.04	24.46	0.45	2.45	0.22	175.67	0.11	156.21	1.40	18.81	0.21	2.98	0.74