



**REMEDIATION STRATEGY
FOR LAND AT
LOWERCROFT ROAD
BURY**

Prepared for: -

**HJK Construction Ltd
Unit 2 Dalton Court
Commercial Road Dawin
BB3 ODG**

**GeoCon Site Investigations Ltd
Suite 2 Marple House
39 Stockport Road,
Marple,
Stockport
SK6 6BD**

**February 2024
Ref: GSI 1923 LD RS Report V1**

Quality Assurance	
Project ID	GSI 1923
Project Name	Lowercroft Road, Bury
Report Type	Remediation Strategy
Report Reference	GSI 1923 LD RS Report V1
Client	HJK Construction Ltd
Version	Version 1
Status	Final
Issue Date	February 2024
Revision Date	-
Written by	<i>Liam Daley</i> For and on behalf of GeoCon Site Investigations Ltd Liam Daley B.Sc. (Hons) Senior Engineering Geologist
Reviewed by	<i>Graham Boulton</i> For and on behalf of GeoCon Site Investigations Ltd Graham Boulton B.Sc. (Hons) F.G.S Senior Engineer
Authorised by	<i>Ian Walker</i> For and on behalf of GeoCon Site Investigations Ltd Ian Walker B.Sc. (Hons) F.G.S Director

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

GeoCon Offices:

Manchester (Head Office)

Suite 2 Marple House
39 Stockport Road
Marple
Greater Manchester
SK6 6BD
Tel: 0844 504 3901

Sheffield

Suite 5
Dinnington Business Centre
Outgang Lane, Dinnington
Sheffield
S25 3QX
Tel: 0844 504 3901

Birmingham

2nd Floor,
Quayside Tower,
Broad Street,
Birmingham.
B1 2HF
Tel: 0844 504 6901

London (East)

Fortis House
160 London Road,
Barking
London
IG11 8BB
Tel: 0844 504 7901

Newcastle-Upon-Tyne:

The Axis Building,
Maingate, Kingsway North,
Team Valley,
Gateshead,
NE11 0NQ
Tel: 0844 504 7981

Bristol:

2430 / 2440
The Quadrant,
Almondsbury,
Bristol,
BS32 4AQ
Tel: 0844 504 9208

London (West)

Park House,
111 Uxbridge Road,
Ealing,
London.
W5 5 LB
Tel: 0844 504 4901

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1.0 INTRODUCTION

1.1 Instruction

- 1.1.1 GeoCon Site Investigations Ltd (GeoCon) have been commissioned by HJK Construction Ltd to develop a Remediation Strategy on land at Lowercroft Road, Bury.
- 1.1.2 It is understood that development proposals comprise the development of four residential properties at the site, with both private and communal garden spaces, new hardstanding driveway and a separated garage structure.

1.2 Previous Surveys

- 1.2.1 Previous assessments conducted upon the site comprise the following, which should be read in conjunction with this strategy:
 - GeoCon report dated November 2023, referenced GSI 1923 LR PII Report V1.

1.3 Objectives

- 1.3.1 The objectives of this remediation strategy are as follows:
 - To outline the remedial strategy proposed at the site and the proposed verification strategy for agreement by the Local Planning Authority (LPA).

1.4 Limitations

- 1.4.1 The assessment and interpretation of the factual data obtained as part of this report has been undertaken in accordance with standard consulting practise and with current national and international guidance.
- 1.4.2 This report presents the observations made during the geoenvironmental site investigations and the factual data obtained. The conclusions and recommendations in this report are limited to those which can be made based on the findings of the survey and information provided by third parties. GeoCon assumes all third-party data to be true and correct. No responsibility can be accepted by GeoCon for inaccuracies in the information provided by any other party.
- 1.4.3 This report is written in the context of an agreed scope of works and should not be used in a different context. Furthermore, new information, improved practises, and changes in legislation may require the reinterpretation of the report in whole or in part after its original issue. GeoCon reserve the right to alter their conclusions and recommendations in the light of further information that may become available. This report is provided for the sole use of the client and their professional advisers and is confidential to them unless agreed otherwise in writing.
- 1.4.4 Ground conditions can be variable and change rapidly, especially in areas of Made Ground, however it is assumed that the ground conditions encountered and observed are typical and representative of the site as a whole. Most specifically with regard to this limited investigation, the ground conditions have been determined from a limited number of exploratory holes formed across the site, therefore only a small percentage of the total area of the site has been investigated. Interpolation between exploratory holes has enabled a general picture of the subsurface conditions to be produced. Conclusions drawn from the ground investigation should be read in this context. GeoCon cannot accept responsibility for any situations resulting from locally unforeseen ground conditions occurring between exploratory holes.
- 1.4.5 In addition, subsurface conditions including contaminant concentrations and groundwater levels may vary spatially with time. This factor should be given due consideration in the event that the information contained within this report is used after any significant period of time has elapsed.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1.1 The site is located at land off Lowercroft Road, Bury, at approximate National Grid Reference NGR: 377576, 411107 (centre of the site).
- 2.1.2 A site location plan is presented as Drawing No. GSI 1923/01 in Appendix A.

2.2 Site Description

- 2.2.1 The site is a roughly rectangular shaped piece of land with an approximate area of 0.15Ha.
- 2.2.2 The topography of the site is generally flat and level, with a slight decline in the southwestern area. The surrounding area sloped generally to the south, consistent with the local topography. The site is lower than the surrounding ground level, with steep slopes raising to the west and north and dropping to the south and west.
- 2.2.3 The site is currently occupied by a vacant plot of land consisting of predominantly soft, made ground. Some domestic waste was seen across the site, and concrete slabs are located in the eastern area, assumed to be associated with the previous development. Small earth bunds were present along the eastern and southern edges of the site. Mature trees were noted along the northern and western boundaries of the site.
- 2.2.4 An approximate distribution of the surface covering is given below in Table 2.1: Site Surface Covering.

Table 2.1: Site Surface Covering

Type of Surface Cover	Distribution (%)
Soft Ground (grassed and landscaped areas)	90
Hardstanding	10
Roadways	0
Buildings	0
Water (ponds, streams)	0

- 2.2.5 The sites boundary is defined by Lowercroft Road to the east and steep slopes raising to the west and north and dropping to the south and west.
- 2.2.6 Access to the site is via Lowercroft Road from the east.

2.3 Surrounding Area

- 2.3.1 The surrounding area comprised residential properties to the west, north and east with industrial properties to the south and southeast.
- 2.3.2 The topography of the surrounding area is gently inclining to the northwest.

2.4 Future Site Usage

- 2.4.1 It is currently proposed to construct four residential properties at the site, with both private and communal garden spaces, new hardstanding driveway and a separated garage structure, as shown on the proposed development plan drawing (ref: Site Plan) and contained with Appendix A.
- 2.4.2 This assessment has been carried out with reference to this proposed development plan as provided by the client, any changes to the proposed development may result in this assessment requirement updating.

3.0 BACKGROUND

3.1 General

- 3.1.1 The intrusive Phase II Site Investigation was carried out by GeoCon between 20th and 21st July 2023, consisting of ten Dynamic Sample boreholes (referenced DS01 to DS10) drilled to depths of between 3.70 and 5.45mbgl.
- 3.1.2 Four of the Dynamic Sample boreholes were installed with combined gas and groundwater monitoring standpipes, with the monitoring period carried between 4th August and 13th October 2023.

3.2 Encountered Geology

- 3.2.1 A generalised summary of the ground conditions encountered, depths to base, and thickness recorded from the exploratory hole records is presented below Table 3.1.

Table 3.1: Summary of Ground Conditions

Geology / Strata	Depth (mbgl)				Thickness (m)		Locations encountered
	Top		Base		Min	Max	
	Min	Max	Min	Max			
Made Ground	0.00	-	0.50	1.30	0.50	1.30	All Locations
Till (Cohesive)	0.50	3.40	2.90	5.00	0.30	4.50	All Locations
Till (Granular)	0.50	4.20	0.90	5.00	0.10	1.70	DS01, DS02, DS03, DS05, DS08 and DS10
Groundwater	Strike depth (mbgl)		Rest Level (mbgl)		Locations encountered		
	Min	Max	Min	Max			
Seepage	-	-	-	-	Not Encountered		
Strike	2.60	3.20	2.60	3.20	DS03 & DS04		
SWL only (no obvious strike)	-	-	-	-	Not Encountered		

- 3.2.2 Cohesive made ground materials were encountered in all locations from ground level to depths of between 0.50 and 1.30mbgl, and generally comprised sandy gravelly clay with fragments of brick, concrete and sandstone.
- 3.2.3 Underlying the Made Ground, cohesive till deposits were encountered in all locations and generally described as very soft to hard reddish brown sandy gravelly Clay, with thin sand bands present.
- 3.2.4 In DS01, DS02, DS05, DS09 and DS10, at depths from 2.80 and 3.00m, granular deposits were encountered underlying the clay. The granular till deposits generally comprised medium dense to very dense clayey sandy gravel, interbedded with clay to unproven depths beyond 5.45mbgl.

3.3 Risks to Human Health

- 3.3.1 Given the proposed development of four residential properties at the site, with both private and communal garden spaces, new hardstanding driveway and a separated garage structure. at the site all chemical results have initially been compared against screening criteria for a residential end use with plant uptake.

- 3.3.2 Eight soil samples were tested for a Metals, Asbestos, PAHs and TPH-CWG suites, ranging depths between 0.20m and 0.70mbgl.
- 3.3.3 No visual or olfactory evidence of contamination was encountered or observed during this ground investigation, in particular no obvious visual or olfactory evidence of mobile contamination was observed during the ground investigation.
- 3.3.4 Concentrations of contaminants reported above the screening criteria are presented in Table 3.2

Table 3.2: Summary of Soil Chemical Testing Results

Determinand	No. Of samples analysed	Screening value (mg/kg) (where applicable)	Determinand concentration range (mg/kg)		Samples exceeding screening value
			Min	Max	
Arsenic	8	37	1.00	15.00	0
Cadmium	8	11	0.50	0.60	0
Copper	8	2400	10.00	29.00	0
Chromium	8	910	15.00	21.00	0
Hexvalent Chromium	8	6	BD	BD	0
Lead	8	210	8.00	63.00	0
Mercury	8	1.2	0.17	0.17	0
Nickel	8	180	11.00	23.00	0
Selenium	8	250	BD	BD	0
Zinc	8	3700	26.00	56.00	0
Acenaphthene	8	210	BD	0.03	0
Acenaphthylene	8	170	BD	0.05	0
Anthracene	8	2400	BD	0.13	0
Benzo(a)anthracene	8	7.2	0.04	0.28	0
Benzo(a)pyrene	8	2.2	0.04	0.24	0
Benzo(b)fluoranthene	8	2.6	0.05	0.25	0
Benzo(ghi)perylene	8	320	0.05	0.09	0
Benzo(k)fluoranthene	8	77	0.07	0.19	0
Chrysene	8	15	0.06	0.35	0
Dibenzo(ah)anthracene	8	0.24	0.04	0.04	0
Fluoranthene	8	280	0.08	0.82	0
Fluorene	8	170	BD	0.05	0
Indeno(123-cd)pyrene	8	27	BD	0.10	0
Naphthalene	8	2.3	BD	0.03	0
Phenanthrene	8	95	BD	0.75	0
Pyrene	8	620	0.07	0.63	0
Total TPH	8	1100	BD	8.00	0

NGV = No Guideline Screening Value Available

- 3.3.5 Eight samples were analysed for asbestos screen. No Asbestos fibres were detected in any of the samples.
- 3.3.6 The Phase II site investigation did not identify any exceedances of contaminants that would require remedial actions in context of human health. The Phase II assessment concluded a Low risk to site users and adjacent neighbours, and Low risk to construction workers, with no remedial action required.

3.4 Risk to Controlled Waters

- 3.4.1 The conclusions of the Phase II site investigation indicated no further action with regards to Controlled Waters is necessary and no remedial actions needed.

3.5 Risks from Ground Gas

- 3.5.1 Potential sources of ground gas on-site are limited to potential infilled ground. Potential off-Site sources include infilled land in proximity to the site. The Phase II site investigation encountered Made Ground to 1.30mbgl.
- 3.5.2 Gas monitoring was carried out on six occasions over a three-month period to assess the risks to the proposed commercial development from potential hazardous ground gasses; with ground gas monitoring standpipes installed at depths of between 1.00 - 5.00mbgl within the natural deposits.
- 3.5.3 Methane concentrations were recorded at 0.0% v/v; Carbon dioxide concentrations ranged between 0.0 and 9.0% v/v; oxygen concentrations ranged between 5.0 and 20.7% v/v, and flows were recorded between 0 and 97l/hr during the monitoring period. It is noted that elevated groundwater levels above that of the response zone is present during periods of high flows.
- 3.5.4 Based on the above information to date and considering the elevated CO₂ and variable peak flows and steady flows, this site has been categorised as falling under Characteristic Situation (CS) 3 – Moderate risk.
- 3.5.5 BS 8485 2015 recommends a point system for protection measures. The proposed development would class as building type A, and therefore this development would require a total of 4.5 points. BS 8485:2015 provides details of the different options that can be used in order to make up the required points which include a combination of a structural barrier, ventilation measures and gas resistant membrane.

4.0 REMEDIATION OUTLINE

4.1.1 The aim of this Remediation Strategy is to minimize the risk to identified receptors, in this case:

➤ Future residents of the proposed development

4.1.2 No contamination was observed during the Phase II investigation which would require remedial actions. The risk to human health relates to ground gas risk to future site users.

4.1.3 The investigation to date has been point specific, therefore there is potential for further contamination to be present on site in those areas not previously tested.

4.1.4 Based on the contamination profile identified and the proposed end use of the site, in order to meet the needs of this Remediation Strategy the recommendations as set out in Section 5.0 below are considered the appropriate approach.

5.0 REMEDIATION STRATEGY

5.1 Aims

5.1.1 The aims of this remediation strategy are the following:

- Resolve any identified and potential contamination issues in order to protect environmental receptors and render the site suitable for the proposed development with respect to the National Planning Policy Framework (NPPF).
- Render the site as unlikely to be defined as Contaminated Land as defined under Part 2A of the EPA.

5.2 Gas Protection Measures

5.2.1 This site has been categorised as falling under Characteristic Situation (CS) 3 – moderate risk.

5.2.2 BS 8485:2015 recommends a point system for protection measures. The proposed development would class as building type A, and therefore this development would require a total of 4.5 points. BS 8485:2015 provides details of the different options that can be used in order to make up the required points which include a combination of a structural barrier, ventilation measures and gas resistant membrane.

5.2.3 A gas membrane is required to be incorporated into the design in order to meet this requirement.

5.2.4 The gas resistant membrane should be designed to meet all of the following criteria:

- Sufficiently impervious to the gases with a methane transmission rate of <40.0 ml/day/m²/atm.
- Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions.
- Sufficiently strong to withstand in service stresses.
- Sufficiently strong to withstand the installation process and following trades until covered.
- Capable after installation of providing a complete barrier to the entry of the relevant gas.
- And, verified in accordance with CIRIA C735

5.2.5 In addition to the gas membrane, a suitably designed floor slab is to be installed on top of the membrane, with appropriate grading of waterproofing to afford further points of gas protection. The designer should also incorporate appropriate ventilation to account for the 4.5 points required.

5.2.6 The above is to be approved by the Local Authority prior to confirming the design details.

5.3 Construction Activities

5.3.1 During the construction works, especially the groundworks, construction workers will be subject to an elevated level of risk.

5.3.2 As such, 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 potentially Contaminated Land”. In summary, the following should be provided by the appointed contractor:

- All staff to be suitably trained and competent.
- Protective clothing, footwear, glasses, suitable dust masks and gloves. (Personnel should be instructed in why and how they are to be used).

- Hand-washing, eye-washing and boot-washing facilities.
- Damp down all exposed soils on site.
- Smoking shall be limited to designated areas.

5.4 Removal of Below Ground Obstructions

- 5.4.1 Obstructions in the form of relic foundations and infrastructure may be found on site during groundworks.
- 5.4.2 Where relict structures are found to retain fluid contaminants, they shall be drained and removed from site. The engineer should be notified to ensure that the appropriate action is taken, and records made for final validation.
- 5.4.3 Deep excavations for the removal of structures etc. will be unstable in the short term and side support may be necessary.
- 5.4.4 Suitable materials derived from the grubbing-up shall be stored in a location on site, to be agreed with the engineer, prior to crushing. Any unsuitable materials shall be removed to a suitable licensed landfill site as stipulated within the Materials Management Plan.
- 5.4.5 Excavations should not be left open for longer than necessary, should be safely battered back and should be securely cordoned-off using 2.00m high safety fencing, with appropriate warning signs whenever excavations works are suspended.

5.5 Export to Landfill

- 5.5.1 Any material exported from the site to landfill should be hauled by a registered waste carrier in accordance with the requirements of the Duty of Care Regulations, 1991 and the Landfill (England and Wales) Regulations 2005.
- 5.5.2 A transfer note should be completed, signed and retained by the parties involved.
- 5.5.3 All hazardous waste going for disposal at landfills must be classified according to the new European Waste Catalogue (EWC).
- 5.5.4 A Hazardous Waste Assessment should be carried out on any materials requiring removal and disposal from site. Waste Acceptance Criteria (WAC) testing may also be required and the results of the Hazardous Waste Assessment and WAC testing (if appropriate) should be presented to the landfill operator for their confirmation of waste category.

5.6 Dust Control

- 5.6.1 At all times during the excavation works, Best Practicable Means shall be employed to minimise dust and odour generation and their emission off site.

5.7 Previously Unidentified Contaminants

- 5.7.1 Should any suspected contaminated materials other than those detailed in this and previous reports be encountered during the re-development, then it should be excavated and stockpiled on an impermeable material and sampled and tested for an appropriate range of determinants.
- 5.7.2 Should any visual or olfactory evidence of contamination be identified during the removal of below ground obstructions and the turning over of made ground appropriate samples shall be taken by the Engineer for chemical analysis. The Engineer shall check the nature of materials excavated for visual and olfactory evidence of hydrocarbon contamination throughout the remedial works. Depending on the

results, the excavated materials shall either be returned to the works beneath the proposed cover system or disposed of, off-site to a suitable licensed facility.

- 5.7.3 Any grossly contaminated soil/fill found during construction works shall be placed in temporary stockpiles on hardstanding or high density Visqueen and be suitably covered to minimize the potential for dust/odour nuisance and prevent surface water runoff. Samples of arisings material will be taken to determine whether this material is suitable for re-use on site following crushing in line with the earthwork specification.
- 5.7.4 Once the laboratory analysis of the material is available an assessment should be undertaken to determine whether it can be retained on-site as part of the Material Management Plan or whether it should be disposed off-site.
- 5.7.5 Depending on the nature of any such impact it may be necessary to undertake validation testing of the excavation faces in order to demonstrate that no such materials are left in-situ.

5.8 Drainage and Services Installations

- 5.8.1 It is recommended that statutory services are consulted at an early stage, with respect to the ground conditions within which they will lay services, in order to enable them to assess if any protection measures are required.
- 5.8.2 Underground services, comprising BT Lines, gas mains, combined and foul sewers, CCTV and possible fibre optic cables may all impact the site and the design team and Client should familiarise themselves with their presence.
- 5.8.3 All drainage installations are anticipated to encounter made ground. Any suitable made ground arisings from drainage trenches etc., if not returned to the original excavation must be placed beneath proposed hard end-use areas of the site, placed beneath a cover of suitable thickness in garden and landscaped areas, or disposed off-site adhering to the guidelines outlined above.

5.9 Soakaway Drainage

- 5.9.1 Should soakaways be utilised at the site, these should not be placed within significantly contaminated made ground, thereby preventing the potential for leachate generation.

5.10 Materials Management Plan

- 5.10.1 The Materials Management Plan should allow for remediation of the site soils in the landscaped areas during the appropriate phase of the works.
- 5.10.2 The Materials Management Plan should also refer to this strategy in respect to:
 - Materials arising from the encountering of previously unidentified contamination.
 - Materials arising from the removal of below ground obstructions.
 - Control of water.
 - Contamination related Health and Safety issues, including dust control.
- 5.10.3 GeoCon does not provide advice on Materials Management Plans, expert advice should be sought.

6.0 VALIDATION

- 6.1.1 Validation of gas protection measures is required to ensure the barrier has been competently installed and not compromised during the installation process. Photographic evidence and visual inspection on site during final installation stages is required to verify the suitability for use.
- 6.1.2 Validation chemical testing should be provided by the supplier of any capping material to be imported to confirm its suitability for use on site. All soil imported should be certified prior to import to be suitable for use as BS2883:2015 compliant for topsoil.
- 6.1.3 Irrespective of the above, all materials to be used within soft landscaping areas, irrespective of its source, should be independently tested for its chemical composition in terms of soil contamination as identified in Section 6.1.3 below.
- 6.1.4 GeoCon has adopted the approach as identified in the YALPAG Verification Requirements for Cover Systems: Technical Guidance for Developers, Landowners and Consultants: Version 4.1 – June 2021 in its verification process. The minimum analysis to be undertaken on materials for use within the cover system is detailed in Table 6.1 below.

Table 6.1: Proposed Testing frequency and analysis

Soil Source	Testing Frequency	Minimum	Analysis suite
Site sourced soils	1 sample per 50m ³	6	Heavy metals/metalloids, and inorganics, Speciated PAH, TPH CWG, asbestos screen.
Imported soils: brownfield source	1 sample per 50m ³	6	Heavy metals/metalloids, and inorganics, Speciated PAH, TPH CWG, asbestos screen.
Imported soils: greenfield / manufactured soil source	1 sample per 250m ³	3	Heavy metals/metalloids, and inorganics, Speciated PAH, TPH CWG, asbestos screen.

- 6.1.5 Where any material is deemed to be unsuitable for use, either by GeoCon or the Local Authority/Environment Agency, the Contractor shall make provision for the costs of sampling, testing and removal of, said unacceptable materials from excavations and shall make provisions for delays associated with material testing and classification prior to disposal.
- 6.1.6 The validation will comprise a visual inspection during installation of the ground protection measures including photographs of sealing points and overall condition of the gas barrier installed, with photographic record and insitu testing of all imported soil also being undertaken as part of the verification. The Validation Report will include the following:
- Remediation Strategy (including copies of confirmation from regulatory authorities agreeing criteria).
 - Details of the design of the gas/vapour protection measures adopted for the development.
 - Details of any gas membrane installation, including confirmation of compliance with the installation specification by the installer and independent validator in accordance with CIRIA C735.
 - Photographic evidence obtained during the installation process of the gas protection membrane.
 - Photographic evidence of the removal of any material from site.
 - Detailed drawings of the excavated areas showing the extent of the material removal operation.

- Details of the provenance of the subsoil and topsoil (to be provided by contractor).
- Copy of Consignment Notes relating to the movement of wastes to a licensed waste management facility.
- Laboratory analysis of validation soil samples and assessment of suitability for use.
- Logs indicating the minimum 600mm thickness of cover soils within each pit excavated.
- A drawing indicating the location of cover thickness validation pits.
- Detailed drawings showing all sampling locations for chemical testing.
- Details of any variation from the adopted strategy due to unforeseen circumstances.
- Details of any previously unidentified contamination encountered.
- Details of any potentially contaminative activity occurrences that took place.
- Production of a Validation Report.

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APPENDIX A
DRAWINGS



GeoCon Site Investigations Ltd
Suite 2 Marple House,
39 Stockport Road,
Marple,
Stockport,
SK6 6BD.
Tel: 0844 504 3901, Fax: 0844 504 3902,
Email: info@geoconsiteinvestigations.com
Web: www.geoconsiteinvestigations.com

PROJECT ID

GSI 1923 Land On Lowercroft, Bury

TITLE

Site Location Plan

DRAWING NUMBER

GSI 1923/01

DATE

October 2023

SCALE

N.T.S

DRAWN BY

LR



GeoCon Site Investigations Ltd
 Suite 2 Marple House,
 39 Stockport Road,
 Marple,
 Stockport,
 SK6 6BD.
 Tel: 0844 504 3901, Fax: 0844 504 3902,
 Email: info@geoconsiteinvestigations.com
 Web: www.geoconsiteinvestigations.com

PROJECT ID
 GSI 1923 Land Off Lowercroft Road, Bury

TITLE
 Exploratory Hole Location Plan

DRAWING NUMBER
 GSI 1923/02

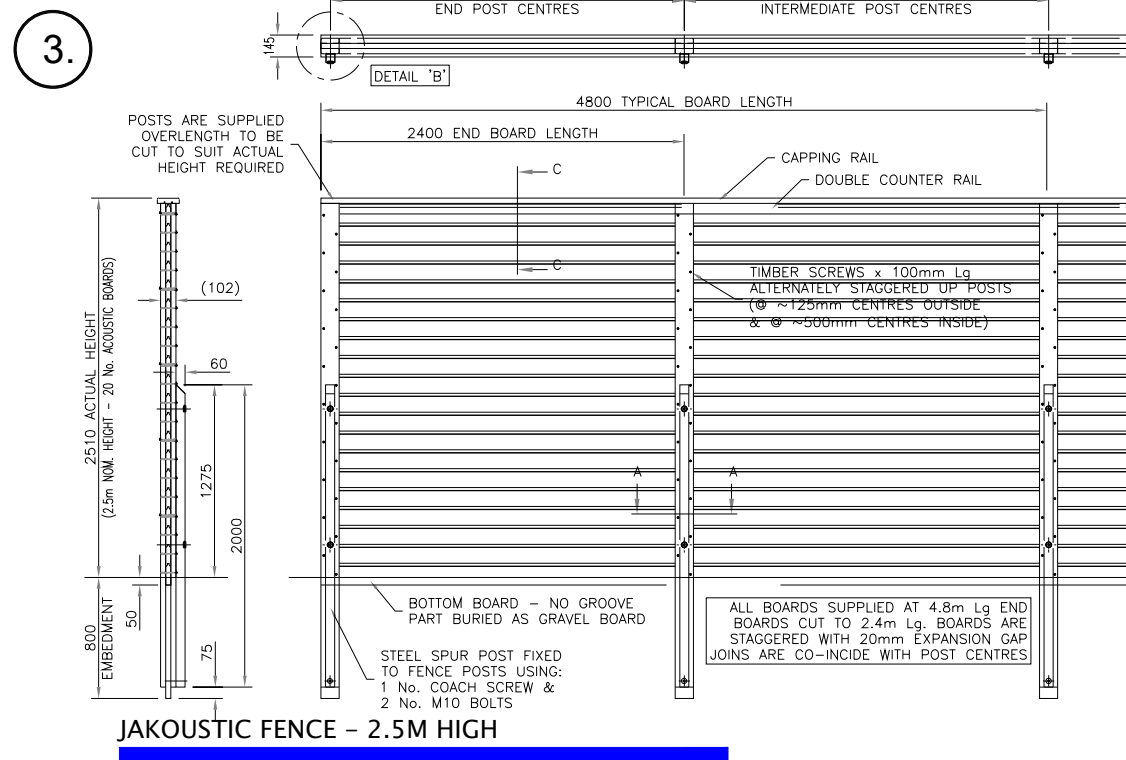
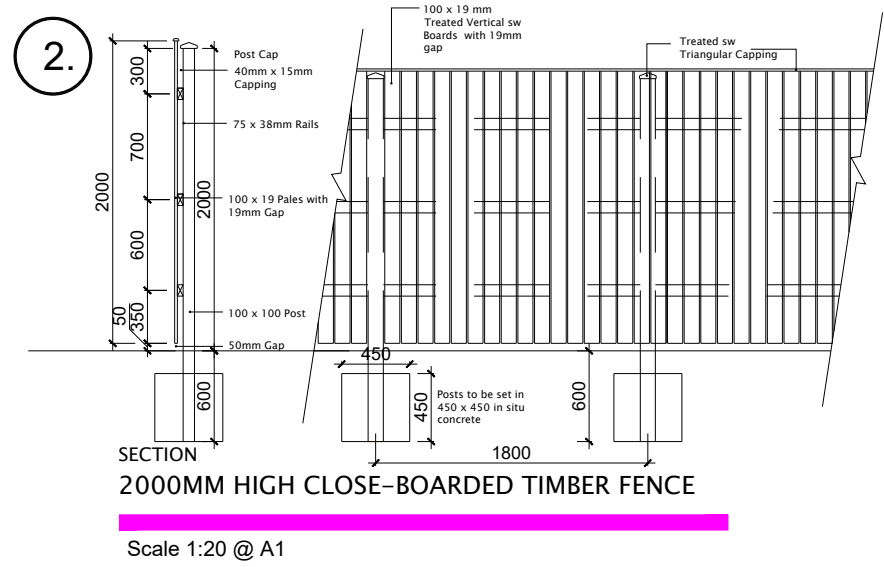
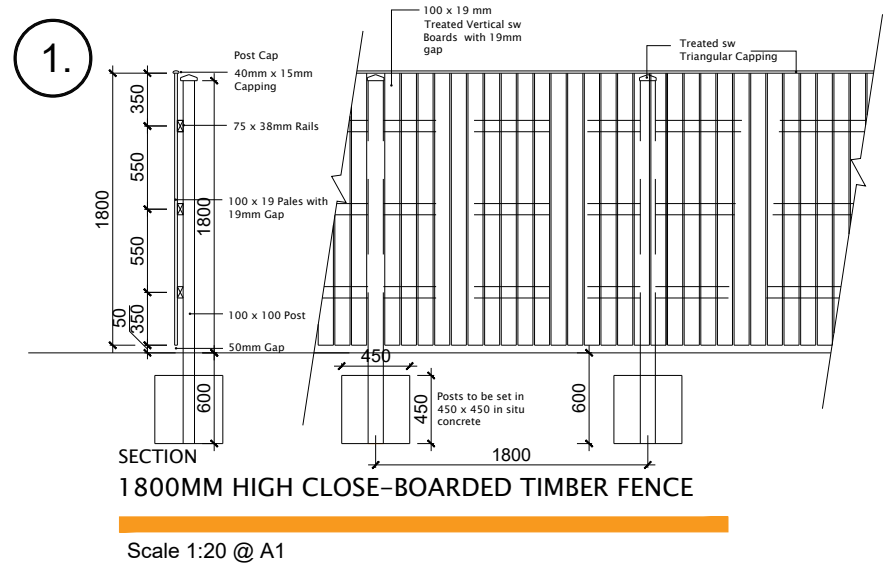
DATE
 October 2023

SCALE
 N.T.S

DRAWN BY
 LR



Boundary Treatments : Scale @1:50 A1



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ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS AND ANY DISCREPANCIES REPORTED TO THE ARCHITECT / ENGINEER / CONTRACTOR

ALL INFORMATION ON THIS DRAWING IS SUBJECT TO A FULL AND COMPREHENSIVE TOPOGRAPHICAL SURVEY AND CONFIRMATION OF RELEVANT TITLE.

ADDITIONAL NOTES
ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE BUILDING REGULATIONS AND THE REQUIREMENTS OF THE LOCAL AUTHORITY.

4	Added public sewer	A.H	H.K	06/07/23
3	amendments to site layout & landscaping	A.H	H.K	05/07/23
2	Further amendments to plot 1	A.H	H.K	03/07/23
1	Plot 1 size reduced, added boundary dims	A.H	H.K	26/06/23
REV	DESCRIPTION	DRWNCHKD	DATE	



PROJECT	Land At Lowercroft
TITLE	Site Plan
SCALE	1:200 @ A1
DATE	26/06/23
DRAWING NO.	HJK-LC-SP
REVISION	4
DRAWN BY	CHECKED BY
PURPOSE OF ISSUE	☐ PLANNING ☐ BUILDING REGS ☐ TENDER ☐ APPROVAL ☐ COMMENT ☐ CONSTRUCTION
AREA	CONSTRUCTION
USE	
MAINTENANCE	
DECOMMISSION	

BELMONT HOUSE
2 DALTON COURT
COMMERCIAL ROAD
DARWIN
BB3 0DG

APPENDIX B

CHEMICAL TESTING RESULTS

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/07421
Issue Number: 1

Date: 08 August, 2023

Client: Geocon Site Investigations Ltd
Suite 2 Marple House,
39 Stockport Road,
Marple
Stockport
UK
SK6 6BD

Project Manager: Henry Holden/Use - Mailing list/Use - Mailing list
Project Name: Land on Lowercroft Road, Bury
Project Ref: GSI 1923
Order No: PO 23/0364
Date Samples Received: 24/07/23
Date Instructions Received: 25/07/23
Date Analysis Completed: 08/08/23

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/1	23/07421/5	23/07421/7	23/07421/9	23/07421/10	23/07421/11	23/07421/13	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS01	DS04	DS06	DS07	DS07	DS08	DS09			
Depth to Top	0.30	0.40	0.40	0.30	0.70	0.20	0.40			
Depth To Bottom										
Date Sampled	20-Jul-23	20-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	6A	5AE	5AE	5AE	5A	5A	6AE			
% Stones >10mm _A	13.9	3.7	11.7	<0.1	<0.1	6.2	5.8	% w/w	0.1	A-T-044
pH _D ^{M#}	5.65	5.76	6.58	6.64	6.20	5.04	5.99	pH	0.01	A-T-031s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Total Organic Carbon _D ^{M#}	0.45	0.37	2.36	1.47	0.36	0.38	2.45	% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	2	<1	5	7	6	6	15	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	13	13	13	14	16	12	29	mg/kg	1	A-T-024s
Chromium _D ^{M#}	19	21	19	19	18	15	19	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	8	8	23	22	22	22	63	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	22	23	13	13	14	11	16	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	37	37	37	32	31	28	56	mg/kg	5	A-T-024s

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/1	23/07421/5	23/07421/7	23/07421/9	23/07421/10	23/07421/11	23/07421/13	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS01	DS04	DS06	DS07	DS07	DS08	DS09			
Depth to Top	0.30	0.40	0.40	0.30	0.70	0.20	0.40			
Depth To Bottom										
Date Sampled	20-Jul-23	20-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	6A	5AE	5AE	5AE	5A	5A	6AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/1	23/07421/5	23/07421/7	23/07421/9	23/07421/10	23/07421/11	23/07421/13	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS01	DS04	DS06	DS07	DS07	DS08	DS09			
Depth to Top	0.30	0.40	0.40	0.30	0.70	0.20	0.40			
Depth To Bottom										
Date Sampled	20-Jul-23	20-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	6A	5AE	5AE	5AE	5A	5A	6AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	0.13	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.06	<0.04	0.28	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	0.07	<0.04	0.24	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	0.07	<0.05	0.25	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	0.19	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	0.09	<0.06	0.35	<0.06	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	0.12	<0.08	0.82	<0.08	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	0.10	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.03	<0.03	0.75	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	0.12	<0.07	0.63	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS _A	<0.08	0.56	<0.08	3.96	<0.08	<0.08	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/1	23/07421/5	23/07421/7	23/07421/9	23/07421/10	23/07421/11	23/07421/13	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS01	DS04	DS06	DS07	DS07	DS08	DS09			
Depth to Top	0.30	0.40	0.40	0.30	0.70	0.20	0.40			
Depth To Bottom										
Date Sampled	20-Jul-23	20-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23	21-Jul-23			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	6A	5AE	5AE	5AE	5A	5A	6AE			
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	<1	<1	<1	3	<1	<1	4	mg/kg	1	A-T-055s
Total Aliphatics _A	<1	<1	<1	3	<1	<1	4	mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	1	<1	<1	1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	<1	<1	4	<1	<1	1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	<1	<1	<1	8	<1	<1	4	mg/kg	1	A-T-055s
Total Aromatics _A	<1	<1	<1	13	<1	<1	6	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	<1	<1	<1	15	<1	<1	10	mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/15							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS10									
Depth to Top	0.30									
Depth To Bottom										
Date Sampled	21-Jul-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
% Stones >10mm _A	10.7							% w/w	0.1	A-T-044
pH _D ^{M#}	5.98							pH	0.01	A-T-031s
Cyanide (total) _A ^{M#}	<1							mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2							mg/kg	0.2	A-T-050s
Total Organic Carbon _D ^{M#}	0.55							% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	<1							mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5							mg/kg	0.5	A-T-024s
Copper _D ^{M#}	10							mg/kg	1	A-T-024s
Chromium _D ^{M#}	16							mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1							mg/kg	1	A-T-040s
Lead _D ^{M#}	12							mg/kg	1	A-T-024s
Mercury _D	<0.17							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	18							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	26							mg/kg	5	A-T-024s

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/15							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS10									
Depth to Top	0.30									
Depth To Bottom										
Date Sampled	21-Jul-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	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									A-T-045

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/15							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS10									
Depth to Top	0.30									
Depth To Bottom										
Date Sampled	21-Jul-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02							mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A	<0.04							mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08							mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Total PAH-16MS _A	<0.08							mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/07421

Client Project Name: Land on Lowercroft Road, Bury

Client Project Ref: GSI 1923

Lab Sample ID	23/07421/15									
Client Sample No										
Client Sample ID	DS10									
Depth to Top	0.30									
Depth To Bottom										
Date Sampled	21-Jul-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1							mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	<1							mg/kg	1	A-T-055s
Total Aliphatics _A	<1							mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1							mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1							mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1							mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1							mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	<1							mg/kg	1	A-T-055s
Total Aromatics _A	<1							mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	<1							mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01							mg/kg	0.01	A-T-022s

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
 The 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 **six 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.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 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.

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 "A"	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°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

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

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Geocon Site Investigations Ltd, Suite 2 Marple House, 39 Stockport Road,
Marple, Stockport, UK, SK6 6BD

Project: Land on Lowercroft Road, Bury

Clients Project No: GSI 1923

Project No: 23/07421

Date Received: 25/07/2023 (am)

Cool Box Temperatures (°C): 16.7, 17.0, 16.8

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	23/07421/1	23/07421/5	23/07421/7	23/07421/9	23/07421/10	23/07421/11	23/07421/13	23/07421/15
Client Sample No								
Client Sample ID/Depth	DS01 0.30m	DS04 0.40m	DS06 0.40m	DS07 0.30m	DS07 0.70m	DS08 0.20m	DS09 0.40m	DS10 0.30m
Date Sampled	20/07/23	20/07/23	21/07/23	21/07/23	21/07/23	21/07/23	21/07/23	21/07/23
A-T-019s	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023
A-T-022s	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023
A-T-024s	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023
A-T-031s	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023	03/08/2023
A-T-032s	04/08/2023	04/08/2023	04/08/2023	04/08/2023	04/08/2023	04/08/2023	04/08/2023	04/08/2023
A-T-040s	08/08/2023	08/08/2023	08/08/2023	08/08/2023	08/08/2023	08/08/2023	08/08/2023	08/08/2023
A-T-042sTCN	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023
A-T-044	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023	01/08/2023
A-T-045	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
A-T-050s	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023	28/07/2023
A-T-055s	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023
Calc-As Recd	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023	31/07/2023

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

End of Report

APPENDIX C

CHEMICAL SCREENING

CRITERIA

Compound / Analyte	Source Reference	Residential WITH consumption of home-grown vegetables			Residential WITHOUT consumption of home-grown vegetables			Commercial			Allotments			Public Open Space - Residential			Public Open Space - Parks		
		1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																			
Antimony	A	141	-	222	437	-	437	4650	-	4650	-	-	58.3	749	-	749	3090	-	3090
Arsenic	C	-	-	37	-	-	40	-	-	640	-	-	43	-	-	79	-	-	170
Barium	A	56.8	-	110	1340	-	1340	22000	-	22000	-	-	18.1	2680	-	2680	5770	-	63
Beryllium	C	-	-	1.7	-	-	1.7	-	-	12	-	-	35	-	-	2.2	-	-	532
Boron	C	-	-	290	-	-	11000	-	-	240000	-	-	45	-	-	21000	-	-	46000
Cadmium (pH 6, 7, 8)	C	-	-	11	-	-	85	-	-	190	-	-	1.9	-	-	120	-	-	532
Chromium III	C	-	-	910	-	-	910	-	-	8600	-	-	18000	-	-	1800	-	-	33000
Chromium VI	C	-	-	6	-	-	6	-	-	33	-	-	1.8	-	-	7.7	-	-	220
Copper	C	-	-	2400	-	-	7100	-	-	68000	-	-	520	-	-	12000	-	-	44000
Lead	B	-	-	210	-	-	330	-	-	6000	-	-	84	-	-	760	-	-	1400
Mercury (elemental)	C	-	-	1.2	-	-	1.2	-	-	58	-	-	21	-	-	16	-	-	30
Mercury (Inorganic)	C	-	-	40	-	-	56	-	-	1100	-	-	19	-	-	120	-	-	240
Mercury (methyl)	C	-	-	11	-	-	15	-	-	320	-	-	6	-	-	40	-	-	68
Molybdenum	A	95.2	-	97.4	-	-	673	-	-	17600	-	-	17	1360	-	1360	2880	-	2880
Nickel	C	-	-	180	-	-	180	-	-	980	-	-	230	-	-	230	-	-	3400
Selenium	C	-	-	250	-	-	430	-	-	12000	-	-	88	-	-	1100	-	-	1800
Vanadium	C	-	-	410	-	-	1200	-	-	9000	-	-	91	-	-	2000	-	-	5000
Zinc	C	-	-	3700	-	-	40000	-	-	730000	-	-	620	-	-	81000	-	-	170000
Non-Metals / Inorganics																			
Free-Cyanide (Total)	A	34			34			373			34			34			34		
Phenol and Chlorophenols																			
Phenol	C	280	550	1100	750	1300	2300	760	1500	3200	66	140	280	760	1500	3200	760	1500	3200
Chlorophenols	C	0.87	2	4.5	94	150	210	3500	4000	4300	0.13	0.3	0.7	620	620	620	1100	1100	1100
Pentachlorophenol	C	0.22	0.52	1.2	27	29	31	400	400	400	0.03	0.08	0.19	60	60	60	110	120	120
Poly Aromatic Hydrocarbons (PAH)																			
Acenaphthene	C	210	510	1100	3000	4700	6000	84000	97000	100000	34	85	200	15000	15000	15000	29000	30000	30000
Acenaphthylene	C	170	420	920	2900	4600	6000	83000	97000	100000	28	69	160	15000	15000	15000	29000	30000	30000
Anthracene	C	2400	5400	11000	31000	35000	37000	520000	540000	540000	380	950	2200	74000	74000	74000	150000	150000	150000
Benzo(a)anthracene	C	7.2	11	13	11	14	15	170	170	180	2.9	6.5	13	29	29	29	49	56	62
Benzo(a)pyrene	C	2.2	2.7	3	3.2	3.2	3.2	35	35	36	0.97	2	3.5	5.7	5.7	5.7	11	12	13
Benzo(b)fluoranthene	C	2.6	3.3	3.7	3.9	4	4	44	44	45	0.99	2.1	3.9	7.1	7.2	7.2	13	15	16
Benzo(ghi)perylene	C	320	340	350	360	360	360	3900	4000	4000	290	470	640	640	640	640	1400	1500	1600
Benzo(k)fluoranthene	C	77	93	100	110	110	110	1200	1200	1200	37	75	130	190	190	190	370	410	440
Chrysene	C	15	22	27	30	31	32	350	350	350	4.1	9.4	19	57	57	57	93	110	120
Dibenzo(ah)anthracene	C	0.24	0.28	0.3	0.31	0.32	0.32	3.5	3.6	3.6	0.14	0.27	0.43	0.57	0.57	0.58	1.1	1.3	1.4
Fluoranthene	C	280	560	890	1500	1600	1600	23000	23000	23000	52	130	290	3100	3100	3100	6300	6300	6400
Fluorene	C	170	400	860	2800	3800	4500	63000	68000	71000	27	67	160	9900	9900	9900	20000	20000	20000
Indeno(123-cd)pyrene	C	27	36	41	45	46	46	500	510	510	9.5	21	39	82	82	82	150	170	180
Naphthalene	C	2.3	5.6	13	2.3	5.6	13	190	460	1100	4.1	10	24	4900	4900	4900	1200	1900	3000
Phenanthrene	C	95	220	440	1300	1500	1500	2200	22000	23000	15	38	90	3100	3100	3100	6200	6200	6300
Pyrene	C	620	1200	2000	3700	3800	3800	54000	54000	54000	110	270	620	7400	7400	7400	15000	15000	15000
PAH (Total 16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petroleum Hydrocarbons (TPH CWG)																			
MTBE	A	27.6	-	220	33.3	-	318	3140	-	22400	-	-	108	73600	-	75000	70800	-	117000
Benzene	C	0.087	0.17	0.37	0.38	0.7	1.4	27	47	90	0.017	0.034	0.075	72	72	73	90	100	110
Toluene	C	130	290	660	880	1900	3900	56000	110000	180000	22	51	120	56000	56000	56000	87000	95000	100000
Ethylbenzene	C	47	110	260	83	190	440	5700	13000	27000	16	39	91	24000	24000	25000	17000	22000	27000
o-Xylene	C	60	140	330	88	210	480	6600	15000	33000	28	67	160	41000	42000	43000	17000	24000	33000
m-Xylene	C	59	140	320	82	190	450	6200	14000	31000	31	74	170	41000	42000	43000	17000	24000	32000
p-Xylene	C	56	130	310	79	180	430	5900	14000	30000	29	69	160	41000	42000	43000	17000	24000	31000
TPH Aliphatic EC5-6	C	42	78	160	42	78	160	3200	5900	12000	730	1700	3900	57000	59000	60000	95000	13000	18000
TPH Aliphatic EC6-8	C	100	230	530	100	230	530	7800	17000	40000	2300	5600	13000	60000	61000	62000	150000	22000	32000
TPH Aliphatic EC8-10	C	27	65	150	27	65	150	2000	4800	11000	320	770	1700	13000	13000	13000	14000	18000	21000
TPH Aliphatic EC10-12	C	130	330	760	130	330	770	9700	23000	47000	2200	4400	7300	13000	13000	13000	21000	23000	24000
TPH Aliphatic EC12-16	C	1100	2400	4300	1100	2400	4400	59000	82000	90000	11000	13000	13000	13000	13000	13000	25000	25000	26000
TPH Aliphatic EC16-35	C	65000	92000	110000	65000	92000	110000	1600000	1700000	1800000	260000	270000	270000	250000	250000	250000	450000	480000	490000
TPH Aliphatic EC35-44	C	65000	92000	110000	65000	92000	110000	1600000	1700000	1800000	260000	270000	270000	250000	250000	250000	450000	480000	490000
TPH Aromatic EC5-7	C	70	140	300	370	690	1400	26000	46000	86000	13	27	57	56000	56000	56000	76000	84000	92000
TPH Aromatic EC7-8	C	130	290	660	860	1800	3900	56000	110000	180000	22	51	120	56000	56000	56000	87000	95000	100000
TPH Aromatic EC8-10	C	34	83	190	47	110	270	3500	8100	17000	8.6	21	51	5000	5000	5000	7200	8500	9300
TPH Aromatic EC10-12	C	74	180	380	250	590	1200	16000	28000	34000	13	31	74	5000	5000	5000	9200	9700	10000
TPH Aromatic EC12-16	C	140	330	660	1800	2300	2500	36000	37000	38000	23	57	130	5100	5100	5000	10000	10000	10000
TPH Aromatic EC16-21	C	260	540	930	1900	1900	1900	28000	28000	28000	46	110	260	3800	3800	3800	7600	7700	7800
TPH Aromatic EC21-35	C	1100	1500	1700	1900	1900	1900	28000	28000	28000	370	820	1600	3800	3800	3800	7800	7800	7900



GeoCon Site Investigations Ltd
 GENERIC SCREENING CRITERIA
 FOR
 GENERIC QUANTITATIVE RISK ASSESSMENT

January 2020

Compound / Analyte	Source Reference	Residential WITH consumption of home-grown vegetables			Residential WITHOUT consumption of home-grown vegetables			Commercial			Allotments			Public Open Space - Residential			Public Open Space - Parks		
		1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM	1 % SOM	2.5% SOM	6 % SOM
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH Aromatic EC>35-44	C	1100	1500	1700	1900	1900	1900	28000	28000	28000	370	820	1600	3800	3800	3800	7800	7800	7900
TPH Aliphatic + Aromatic EC>44-70	C	1600	1800	1900	1900	1900	1900	28000	28000	28000	1200	2100	3000	3800	3800	3800	7800	7800	7900



GeoCon Site Investigations Ltd

GENERIC SCREENING CRITERIA

FOR

GENERIC QUANTITATIVE RISK ASSESSMENT

January 2020

Generic Screening Criteria Reference Guide:	
Soils - Generic Screening Criteria Source Reference	
A	AtRisk Soil Screening Values and Water Screening Values Produced by Atkins 2017
B	Defra C4SL's 2014
C	LQM/CIEH S4ULs for Human Health Risk Assessment Values 2015
D	NHBC Technical Extra 15 - 2014
E	UK (CLEA) Soil Guideline Value 2009
F	CL:AIRE GAC Values December 2009
Waters - Generic Screening Criteria Source Reference	
1	Environmental Quality Standard from List 2 EC Dangerous Substances Directive (76/464/EEC) - Freshwater
2	Environmental Quality Standard from EC Surface Water Abstraction Directive (75/440/EEC) - Imperative (A1)
3	Drinking Water Standard from World Health Organisation (WHO) Guidelines for Drinking Water Quality, 1984 - health value
4	Environmental Quality Standard from List 2 EC Dangerous Substances Directive (76/464/EEC) - Freshwater (hardness related)
5	Environmental Quality Standard from EC Surface Water Abstraction Directive (75/440/EEC) - Imperative (A2)
6	Drinking Water Standard from World Health Organisation (WHO) Guidelines for Drinking Water Quality, 1984 - ATO
7	Ayscough <i>et al.</i> (2002) Proposed Environmental Quality Standards for Ethylbenzene in Water (EA R&D Technical Report P2-115/TR4).
8	UK Drinking Water Inspectorate - threshold for objectionable odour/taste of 5µg/l to 10µg/l
9	US EPA advisory limits (1997). As published in Environment Agency "The fuel additive MTBE a groundwater protection issue?" booklet.
10	Ahlberg <i>et al.</i> (2001) An Environmental Risk Assessment of MTBE use in Europe. ECETOC/EFOA Task Force on ERA of MTBE.
11	Environmental Quality Standard from List 1 EC Dangerous Substances Directive (76/464/EEC) - Freshwater
12	As Presented in Appendix 8 "Selected Water Quality Standards" in Hydrogeological Risk Assessments for Landfills (LFTGN01 - Environment Agency, March 2003).
13	UK Drinking Water Standards (DWS)
14	Environment Agency, Environmental Quality Standards (EQS) 2015
Abbreviations	
SOM	Soil Organic Matter

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