VALIDATION REPORT
FOR LAND AT
7 – 7A KINGS END
RUISLIP
LONDON

Prepared for: -

Ebro Global Limited
C/O Questside Management Limited
41 The Broadway
Joel Street
Northwood Hills
Middlesex
HA6 1NZ

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Suite 2, Marple House
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Marple,
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SK6 6BD

December 2021
M0375 GB (GSI1525) VR VSP 301121

Quality Assurance	
Report Title	Validation Report for Land at 7 to 7A Kingsend, Ruislip, London
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List Of Acronyms

Acronym	Meaning
BGS	British Geological Survey
BH	Borehole
CDM	Construction Design and Management
CL:AIRE	Contaminated Land: Applications In Real Environments
CLR	Contaminated Land Report
COSHH	Control Of Substances Hazardous to Health
CSM	Conceptual Site Model
DCP	Dynamic Cone Penetrometer
DEFRA	Department for Environment Foods and Rural Affairs
DP	Dynamic Probe
DoE	Department of Environment
DWS	Drinking Water Standard
EA	Environment Agency
EQS	Environmental Quality Standard
GAC	Generic Acceptance Criteria
HP	Hand Pit
HA	Hand Auger
LPA	Local Planning Authority
LQM	Land Quality Management
mbgl	Metres Below Ground Level
MP	Mackintosh Probe
NPPF	National Planning Policy Framework
NGR	National Grid Reference
OS	Ordnance Survey
SGV	Soil Guideline Value
SSV	Soil Screening Value
WSV	Water Screening Value
SPOSH	Significant Possibility of Significant Harm
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
TP	Trial Pit
TT	Trial Trench
WS	Windowless Sample / Window Sample

1.0 INTRODUCTION

1.1 Instruction

1.1.1 GeoCon Site Investigations Ltd (GeoCon) have been commissioned by Ebro Global Ltd C/O Questside Management Limited (EGL) to undertake validation of the remediation work on land at 7 – 7A Kingsend, London.

1.1.2 The development comprises the redevelopment of the site into two residential properties with associated driveways and garden areas.

1.1.3 The site has been granted planning permission (45467/APP/2016/3680) by the Council of the London Borough of Hillingdon. There is a planning condition, Condition 9 – Contaminated Land , which this report has been designed to discharge.

1.2 Previous Surveys

1.2.1 No Phase II Site Investigation has been made available for GeoCon's use associated to this site.

1.2.2 No Remediation Strategy has been made available for GeoCon's use associated to this site.

1.3 Instruction

1.3.1 GeoCon were instructed to validate a sufficient thickness of suitable "clean" imported material has been applied to landscaped areas across the site.

1.4 Objectives

1.4.1 The objectives of this validation report are therefore to establish that the remedial work in respect of any potentially contaminated soil has been appropriately undertaken and to provide information to the Local Authority in order to discharge planning conditions.

1.5 Limitations

1.5.1 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.

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.

1.5.2 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 BMDC and their professional advisers and is confidential to them unless agreed otherwise in writing.

1.5.3 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.

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

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

2.1.1 The site is located at No. 7 to 7A Kingsend, Ruislip, London at approximate National Grid Reference NGR: 509381, 187066 (centre of the site).

2.1.2 A site location plan is presented as Drawing No. GSI 1525/01 in Appendix A.

2.2 Site Reconnaissance and Description

2.2.1 The site is roughly a rectangular shaped piece of land with an approximate area of 0.047 Ha, elongated north – south.

2.2.2 The site is currently occupied by two new residential semi-detached properties with associated gardens, parking and access routes.

2.2.3 The topography of the site is generally flat.

2.2.4 Access to the site directly off Kingsend which is immediately north of the site.

2.3 Surrounding Area

2.3.1 The current surrounding land use to the site is generally residential with some commercial properties in all directions. A supermarket is to the south of the site.

2.4 Future Site Usage

2.4.1 The site is currently being redeveloped into a new residential development.

3.0 VALIDATION

3.1 General

3.1.1 The aims of the validation work undertaken are as follows:

- Validation of the implementation of a clean cover system.

3.2 Validation of Cover System

3.2.1 Site validation was undertaken on the 17th November 2021.

3.2.2 Topsoil has been placed in the rear garden areas of the properties. A total of two hand excavated trial pits were advanced, one for each residential property.

3.2.3 The locations of the hand excavated trial pits are indicated on drawing GSI 1525/02 in Appendix A.

3.2.4 The specification and scope of works for the validation of the site have been proposed by GeoCon in our quotation M0375 MS (BID4646) Quote VSP 060721, and includes for the following:

- Validate the cover system by the following methods:
  - Excavate validation trial holes to prove that a sufficient depth of 'inert' cover material has been laid;
  - Collect samples of the imported 'inert' materials from the validation trial holes;
  - Provide photographic records of all hand excavated trial pits after the placement of the imported 'inert' materials. The photographs will include a levelling staff or similar measurement gauge so that the required depths can be visually observed in each photograph.
- Sample and test all clean imported topsoil materials for a chemical testing suite which includes heavy metals and inorganics, Speciated PAH and asbestos screen.
- Provision of validation report.

3.3 Validation Trial Holes

3.3.1 Hand excavated trial pits referenced HP01 and HP02 were undertaken by GeoCon at a frequency of one per plot to confirm that the depth of cover system meets the requirements.

3.3.2 All validation holes logs are presented in Appendix B.

3.3.3 GeoCon have maintained photographic evidence during each visit.

3.3.4 Photographs are presented in Appendix C and show each validation hole comprising a minimum of 600mm of clean cover.

3.4 Sampling

3.4.1 Soil samples were collected for chemical analysis by the engineering geologist on site based on physical and visual inspection and were subsequently transferred to a fully accredited chemical laboratory in the correct glass jars and plastics tubs.

3.4.2 All samples were stored in pre-chilled cool-boxes prior to immediate dispatch to laboratory.

3.5 Laboratory Testing

3.5.1 Chemical laboratory testing was subsequently carried out on selected samples of soil. Further details of the chemical laboratory testing are given below.

3.5.2 All samples were sent to a UKAS accredited chemical testing laboratory, and MCERTS were used where available. The analytical strategy focussed on a general suite of potential contaminants and the analytical suites as summarised in Table 3.1 Summary of Chemical Testing Suite below.

3.5.3 All chemical testing results are presented in Appendix D.

Table 3.1: Summary of Chemical Testing Suite

Testing	Comment	No. of Samples Analysed
General heavy metals	1 sample per validation trial hole	2
Speciated PAH	1 sample per validation trial hole	2
Asbestos	1 sample per validation trial hole	2
TPH CWG	1 sample per validation trial hole	2

3.6 Chemical Results

3.6.1 The results of the validation testing have been reviewed against the human health soil screening criteria for residential use with plant uptake, which are considered to be the most applicable generic screening values for the end use on site.

3.6.2 The chemical screening criteria values are provided in Appendix E.

3.6.3 In summary, all the samples tested returned chemical concentrations below the relevant screening criteria indicating that the soils are chemically suitable and fit for purpose to be used on site and are not considered to pose a risk to future end users of the site.

3.6.4 No asbestos was identified in any of the samples.

3.6.5 As such the cover system is considered to have been suitably applied in the areas of soft landscaping.

3.7 Previously Unidentified Contamination

3.7.1 No contamination or olfactory evidence was observed during the groundworks at the site.

3.8 Contamination Generating Activities

3.8.1 No contamination generating activities were reported or observed by GeoCon during the site visit.

4.0 REFERENCES

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- *British Geological Survey (BGS): 1:50'000 geological maps of the area*
- *British Geological Survey (BGS): Open geoscience online mapping tool*
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- *BS 10175: Code of Practise for the Investigation of Potentially Contaminated Sites*
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- *CIRIA 552: Contaminated Land Risk Assessment; A Guide to Good Practise 2001*
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- *David Norbury: Soil and Rock Descriptions in Engineering Practise*
- *Department of the Environment: DOE industry profiles*
- *EN ISO 14688-1: Geotechnical investigation and testing -- Identification and classification of soil -- Part 1: Identification and description*
- *EN ISO 14688-2: Geotechnical investigation and testing -- Identification and classification of soil -- Part 2: Principles for a classification*
- *EN ISO 14689: Geotechnical investigation and testing -- Identification and classification of rock -- Part 1: Identification and description*
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- *Environment Agency (EA): Soil Guideline Values (SGVs)*
- *International Society of Rock Mechanics (ISRM): Commission on Testing Methods (1985) Suggested Method for Determining Point Load Strength, Int. J. Rock Mech. Min. Sci. and Geomech. Abstr. 22, 1985, pp.51-60.*
- *Land Quality Management (LQM): Generic Screening Criteria (GACs)*
- *Landmark: Envirocheck report and Envirocheck analysis online historical mapping tool*
- *Ordnance survey: OS Landranger map for the area; OS open data online mapping tool*
- *Planning Policy 23: Planning and Pollution Control, Office of The Deputy Prime Minister 2004*
- *R&D Publication CLR 8: Assessment of risks to human health from land contamination*
- *R&D Publication CLR 10: The Contaminated Land Exposure Model (CLEA)*
- *R&D Publication CLR 11: Model Procedure for the Management of Contaminated Land DEFRA 2004*
- *Stroud M.A: The standard penetration test in insensitive clays, Proceedings of the European Symposium on Penetration Testing, Stockholm, 1975, Vol 2,pp 367 – 75.*
- *UK Specification for Ground Investigation Second Edition 2012*

APPENDIX A

DRAWINGS

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Tel: 0844 504 3901, Fax: 0844 504 3902,
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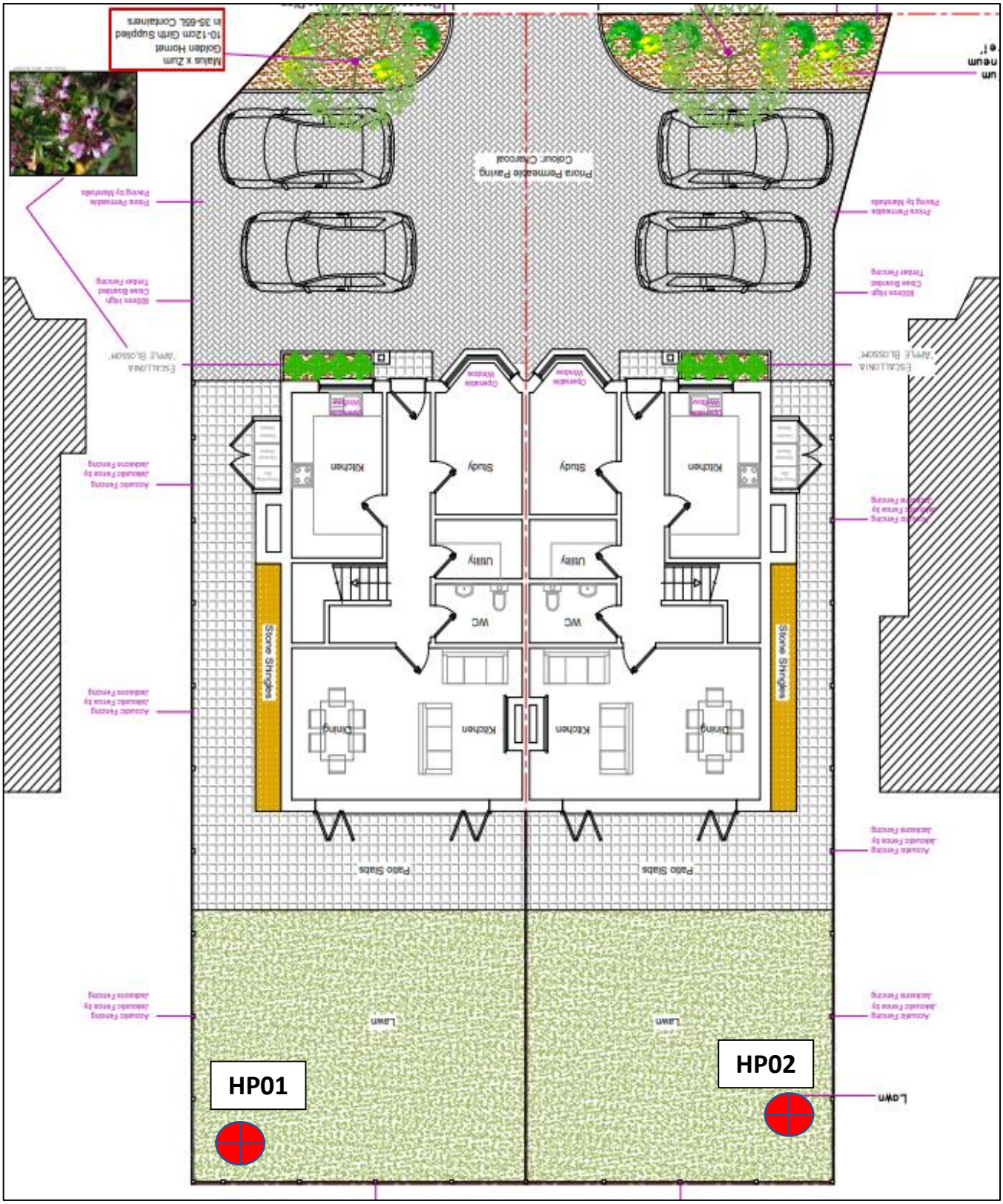
Web: www.geoconsiteinvestigations.com

PROJECT ID	DRAWING NUMBER	SCALE
GSI 1525	GSI 1525/01	N.T.S
TITLE	**DATE**	**DRAWN BY**
Site Location	November 2021	JS



GEOCON®	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 1525	**DRAWING NUMBER** GSI 1525/02	**SCALE** N.T.S
		TITLE Exploratory Hole Location Plan	**DATE** November 2021	**DRAWN BY** GB

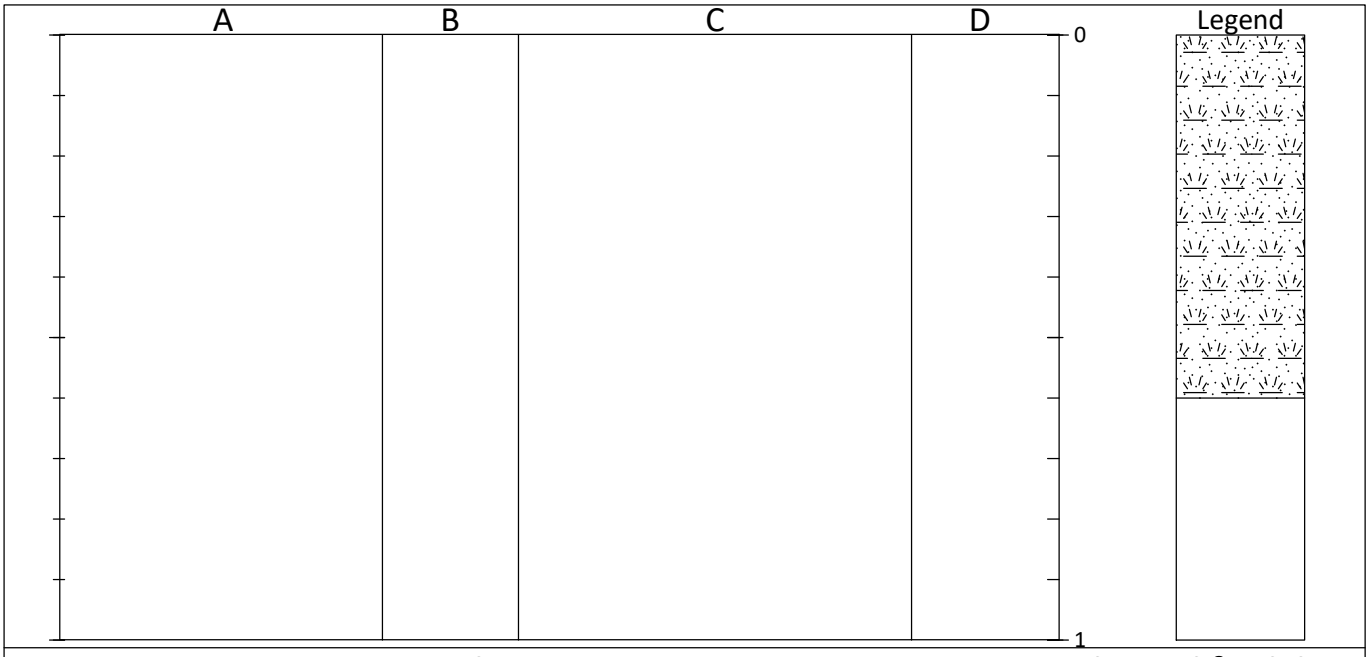
APPENDIX B

HAND PIT LOGS

GeoCon Site Investigations Ltd
15 Belmont Drive, Marple Bridge, Stockport SK6 5EA.
Tel: 08445043901 Fax: 08445043902
Web: www.geoconsiteinvestigations.com Email: info@geoconsiteinvestigations.com

TRIAL PIT LOG

Project				TRIAL PIT No
7/7a Kingsend, Ruislip				**HP01**
Project ID: GSI 1525	Date: 17-11-21 17-11-21	Ground Level (m):	Co-Ordinates:	
Contractor				Sheet: 1 of 1

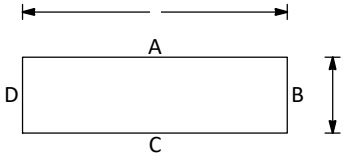


STRATA

SAMPLES & TESTS

Depth	No	DESCRIPTION	Depth	Type	Remarks/Tests
0.00-0.60		TOPSOIL: Grass over very soft dark brown slightly sand slightly gravelly CLAY with occasional root. Gravel is subangular to rounded fine to coarse of various lithologies with rare brick, tile and wood.	0.30	ES	

Shoring/Support:
Stability:



GENERAL REMARKS

All dimensions in metres Scale 1:12.5	Client: Ebro Global Ltd C/O Questside Management Ltd	Method / Plant Used: Hand Digging Equipment	Logged By: JS

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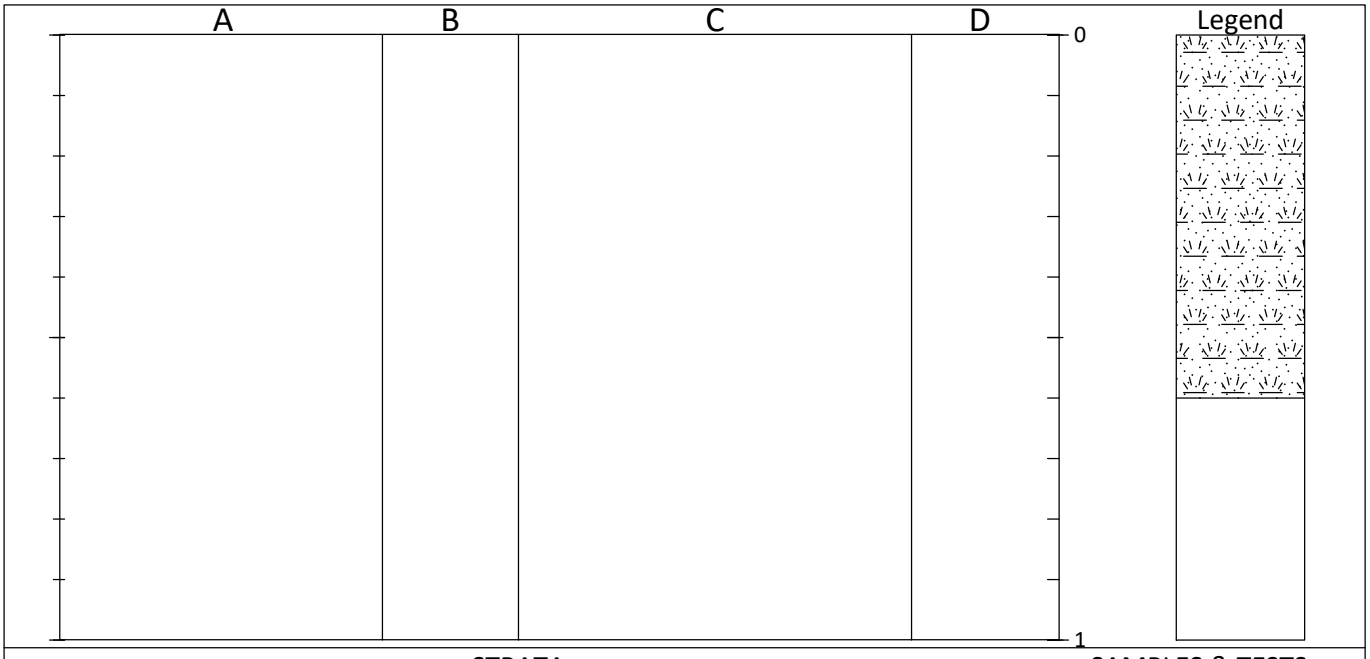
Web: www.geoconsiteinvestigations.com Email: info@geoconsiteinvestigations.com

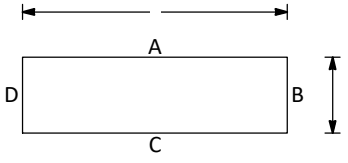
TRIAL PIT LOG

Project				TRIAL PIT No
7/7a Kingsend, Ruislip				**HP02**
Project ID: GSI 1525	Date: 17-11-21 17-11-21	Ground Level (m):	Co-Ordinates:	
Contractor				Sheet: 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	Type	Remarks/Tests
0.00-0.60		TOPSOIL: Grass over very soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is subangular to rounded fine to coarse of various lithologies with rare brick, tile and wood.	0.30	ES	
		0.40 Clay becomes less sandy.			

Shoring/Support:
Stability:



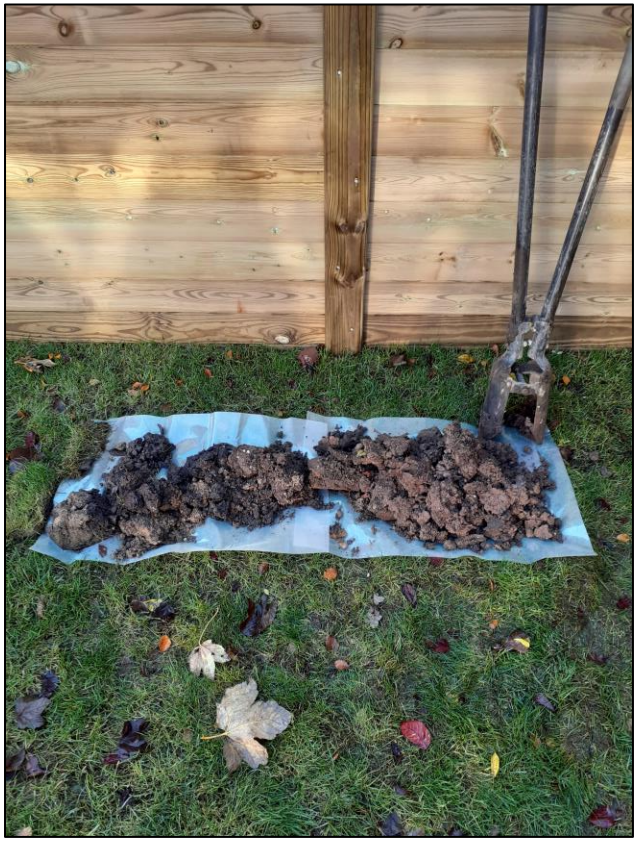
GENERAL REMARKS

All dimensions in metres Scale 1:12.5	Client: Ebro Global Ltd C/O Questside Management Ltd	Method / Plant Used: Hand Digging Equipment	Logged By: JS

APPENDIX C

PHOTOGRAPHIC EVIDENCE OF REMEDIATION WORKS

HP01 – General view



HP01 – Excavated arisings

HP01 – Close up of depth validation

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PROJECT ID	DRAWING NUMBER	SCALE
GSI 1525	GSI 1525/03	N.T.S
TITLE	**DATE**	**DRAWN BY**
Site Photographs	November 2021	GB

HP02 – General view

HP02 – Excavated arisings

HP02 – Close up of depth validation

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PROJECT ID	DRAWING NUMBER	SCALE
GSI 1525	GSI 1525/04	N.T.S
TITLE	**DATE**	**DRAWN BY**
Site Photographs	November 2021	GB

APPENDIX D

CHEMICAL TESTING RESULTS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/12621
Issue Number: 1 **Date:** 02 December, 2021

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

Project Manager: Use - Mailing list/Use - Mailing list 2
Project Name: 7/7a Kings End, Ruislip
Project Ref: GSI 1525
Order No: PO 21/0699
Date Samples Received: 19/11/21
Date Instructions Received: 22/11/21
Date Analysis Completed: 02/12/21

Approved by:

Sophie France
Client Service Manager

Envirolab Job Number: 21/12621

Client Project Name: 7/7a Kings End, Ruislip

Client Project Ref: GSI 1525

Lab Sample ID	21/12621/1	21/12621/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP01	HP02								
Depth to Top	0.30	0.30								
Depth To Bottom										
Date Sampled	17-Nov-21	17-Nov-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6ABE	6ABE								
% Stones >10mm$_A$	<0.1	18.0						% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.41	8.23						pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.04	0.06						g/l	0.01	A-T-026s
Cyanide (total)$_A$$^{M\#}$	<1	<1						mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2						mg/kg	0.2	A-T-050s
Arsenic$_D$$^{M\#}$	7	12						mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	1.0	0.7						mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	45	24						mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	26	21						mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	-						mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	185	36						mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17						mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	17	16						mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1						mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	138	62						mg/kg	5	A-T-024s

Envirolab Job Number: 21/12621

Client Project Name: 7/7a Kings End, Ruislip

Client Project Ref: GSI 1525

Lab Sample ID	21/12621/1	21/12621/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP01	HP02								
Depth to Top	0.30	0.30								
Depth To Bottom										
Date Sampled	17-Nov-21	17-Nov-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6ABE	6ABE								
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: 21/12621

Client Project Name: 7/7a Kings End, Ruislip

Client Project Ref: GSI 1525

Lab Sample ID	21/12621/1	21/12621/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP01	HP02								
Depth to Top	0.30	0.30								
Depth To Bottom										
Date Sampled	17-Nov-21	17-Nov-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6ABE	6ABE								
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	0.06						mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	0.02						mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.03	0.17						mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.21	0.78						mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.23	1.35						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.28	1.17						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.13	0.80						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.10	0.38						mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.26	0.84						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	0.18						mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.48	1.57						mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	0.05						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.15	0.92						mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03						mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.15	0.55						mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.42	1.41						mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	2.44	10.2						mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/12621

Client Project Name: 7/7a Kings End, Ruislip

Client Project Ref: GSI 1525

Lab Sample ID	21/12621/1	21/12621/2						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP01	HP02								
Depth to Top	0.30	0.30								
Depth To Bottom										
Date Sampled	17-Nov-21	17-Nov-21								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6ABE	6ABE								
TPH CWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1						mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1						mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	<1						mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	<1						mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	18	30						mg/kg	1	A-T-055s
Total Aliphatics$_A$	18	30						mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1						mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	<1						mg/kg	1	A-T-055s
Aro >C12-C16$_A$	4	2						mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	16	11						mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	62	63						mg/kg	1	A-T-055s
Total Aromatics$_A$	82	76						mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	99	106						mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01						mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after 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 the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples 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.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

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 analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

v1

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: 7/7a Kings End, Ruislip

Clients Project No: GSI 1525

Project No: 21/12621

Date Received: 22/11/2021 (am)

Cool Box Temperatures (°C): 12.1

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	21/12621/1	21/12621/2
Client Sample No		
Client Sample ID/Depth	HP01 0.30m	HP02 0.30m
Date Sampled	17/11/21	17/11/21
A-T-019s	24/11/2021	24/11/2021
A-T-022s	30/11/2021	26/11/2021
A-T-024s	26/11/2021	26/11/2021
A-T-026s	25/11/2021	25/11/2021
A-T-031s	26/11/2021	26/11/2021
A-T-040s	02/12/2021	
A-T-042sTCN	24/11/2021	24/11/2021
A-T-044	02/12/2021	02/12/2021
A-T-045	23/11/2021	23/11/2021
A-T-050s	24/11/2021	24/11/2021
A-T-055s	30/11/2021	26/11/2021

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 E

CHEMICAL SCREENING CRITERIA

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
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	570000	590000	600000	95000	130000	180000
TPH Aliphatic EC>6-8	C	100	230	530	100	230	530	7800	17000	40000	2300	5600	13000	600000	610000	620000	150000	220000	320000
TPH Aliphatic EC>8-10	C	27	65	150	27	65	150	2000	4800	11000	320	770	1700	13000	13000	13000	14000	18000	21000
TPH Aliphatic EC>10-12	C	130	330	760	130	330	770	9700	23000	47000	2200	4400	7300	13000	13000	13000	21000	23000	24000
TPH Aliphatic EC>12-16	C	1100	2400	4300	1100	2400	4400	59000	82000	90000	11000	13000	13000	13000	13000	13000	25000	25000	26000
TPH Aliphatic EC>16-35	C	65000	92000	110000	65000	92000	110000	1600000	1700000	1800000	260000	270000	270000	250000	250000	250000	450000	480000	490000
TPH Aliphatic EC>35-44	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 EC>7-8	C	130	290	660	860	1800	3900	56000	110000	180000	22	51	120	56000	56000	56000	87000	95000	100000
TPH Aromatic EC>8-10	C	34	83	190	47	110	270	3500	8100	17000	8.6	21	51	5000	5000	5000	7200	8500	9300
TPH Aromatic EC>10-12	C	74	180	380	250	590	1200	16000	28000	34000	13	31	74	5000	5000	5000	9200	9700	10000
TPH Aromatic EC>12-16	C	140	330	660	1800	2300	2500	36000	37000	38000	23	57	130	5100	5100	5000	10000	10000	10000
TPH Aromatic EC>16-21	C	260	540	930	1900	1900	1900	28000	28000	28000	46	110	260	3800	3800	3800	7600	7700	7800
TPH Aromatic EC>21-35	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

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 Produces 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 *et al.* (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 *et al.* (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