

RDM

Environmental and Geotechnical Engineering Ltd

Summary Report

on a

Phase Two Intrusive Survey

for a residential development at

Plot No. 3
Dovecot Close
Congerstone
Leicestershire
CV13 6PE

for:

Mr Adi Newberry,
c/o Corporate Architecture Ltd,
Venari House, 1 Trimbush Way,
Market Harborough,
Leicestershire.
LE16 7XY

Prepared by:	Date	Revised	Revision
RDM Environmental and Geotechnical Engineering Ltd, 42 High Street, Gretton, Northamptonshire. NN17 3DE.	18 th June 2026	Issued	
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1. EXECUTIVE SUMMARY

1.1. General

- 1.1.1. This executive summary should be read in conjunction with the whole report to avoid omission of relevant and important information.
- 1.1.2. The residential development of Plot 3 Dovecot Close, Congerstone, Leicestershire has been assessed for the potential for contamination as it has been undertaken on former agricultural land.
- 1.1.3. The development is part of a wider residential scheme, which has been completed with outstanding planning conditions, relative to the potential for contamination, and the compliance of the imported cover system with BS3882:2015 Topsoil Specification.
- 1.1.4. Following the release of laboratory testing to determine compliance, Plot Three has been shown to be of low risk of contamination when tested for naturally occurring metalloids, lead (Pb) and arsenic (As) etc, and a range of polycyclic aromatic hydrocarbons (PAH). The imported soils were also shown to be compliant with requirements of BS3882:2015 Topsoil Specification.
- 1.1.5. Therefore, the development is considered not to pose a risk to any site vulnerable receptor (female child of 0 to 6 years of age).

2. INTRODUCTION

- 2.1.1. This report has been prepared by RDM Environmental and Geotechnical Engineering Ltd on the instruction of Mr Adi Newberry, c/o Corporate Architecture Ltd, Market Harborough, who has developed the site for residential purposes.
- 2.1.2. This report has been prepared generally in accordance with EA procedures given in Land Contamination: Risk Management (LCRM 2019) and to satisfy the requirements of Part C of the Building Regulations. Where appropriate it also takes account of the requirements for land quality management in the NHBC Standards and the National Planning Policy Framework (NPPF). Reference has also been made to BS3882:2015 Topsoil Specification.
- 2.1.3. The report covers an intrusive assessment of the soils on the plot in order to discharge planning conditions.
- 2.1.4. The conditions stated in the final appendix of the report were applied to this investigation and the report is to be read and construed accordingly.
- 2.1.5. This report specifically excludes the identification of injurious and invasive weeds. Under the Weeds Act 1959, the Secretary of State may serve an enforcement notice on the occupier of land on which injurious weeds are growing, requiring the occupier to take action to prevent the spread. The Weeds Act also specifies five injurious weeds which include broad-leaved dock and curled dock, creeping, spear or field thistle and common ragwort.
- 2.1.6. The Wildlife and Countryside Act 1981 provides advice on control on releasing non-native species of wildflowers into Great Britain. Under section 12(2) of the Act, it is an 'offence to plant or otherwise cause to grow in the wild' any plants listed in schedule 9, part II. Commonly known plants included in this section include Japanese Knotweed and Giant Hogweed. RDM are not specialists in this field and so if they are suspected then specialist advice needs to be sought, but the presence of these plants on any site may have considerable effects on the cost and timescale in developing the site.

3. CONTAMINATION AND COVER SYSTEM TESTING

- 3.1.1. Two samples from the plot were submitted to a laboratory for environmental testing for a range of congeners, inclusive of naturally occurring metalloids (arsenic, lead, selenium etc), any residual polycyclic aromatic hydrocarbons (PAHs) and cover system compliance.
- 3.1.2. Samples were tested according to criteria given in LQM/CIEH (2015) S4ULs for Human Health Risk Assessment, license no. S4UL3904, and compared to BS3882:2015 Topsoil Specification.

4. CONTAMINATION TESTING RESULTS AND SITE SOURCE RECEPTOR LINKAGE MODEL

- 4.1.1. This risk assessment has been undertaken on an area of the development site described as Plot 3.
- 4.1.2. For the purposes of this risk assessment, the LQM/CIEH (2015) S4ULs Human Health Risk Assessment (and C4SLs) for residential use (with plant uptake) represent the maximum concentrations for the substances assessed. The relevant S4UL fractions have been determined using a soil organic carbon content (SOC) of 2.5%.
- 4.1.3. Each determinand for which a published S4UL exists has a mean and standard deviation calculated, and then "T-tests" are carried out (Mean Value and Maximum Value Tests). Reference is then made to the S4UL for the individual determinand in order to assess the level of risk posed.
- 4.1.4. Assessment of contamination has been based on "Guidance on Comparing Soil Contamination Data with a Critical Concentration" (Chartered Institute of Environmental Health and Contaminated Land: Application in Real Environments, May 2008), SR2, 3 and 4 inclusive, and the LQM/CIEH (2015) S4ULs Human Health Risk Assessment.
- 4.1.5. The samples recovered from the plot were found to be relevant, sufficient, reliable and transparent based upon the requirements indicated in the "Guidance on Comparing Soil Contamination Data with a Critical Concentration".
- 4.1.6. Mean concentration of a determinand based on a low number of samples may be a poor indicator of the true mean population for the site as a whole. A conclusion over remediation based on a comparison of such a sample mean against the S4UL may not be sufficiently health protective. Therefore, the Mean Value Test allows a statement to be made with a given level of confidence (usually 95%) that the population mean is less than the S4UL and takes into account the number of samples analysed.
- 4.1.7. The calculated values of the upper confidence level of the sample group (US95) may be compared with the S4UL, and if it is less, then the Mean Value Test has been passed, and the plot may be considered not to present a significant possibility of harm to human health within the context of Part IIA of the Environment Protection Act. Where a result shows the concentration to be less than the limit of detection adopted for the analysis, the value of the limit of detection has been used in the calculation.

- 4.1.8. The calculation is based on the following equation:

$$US95 = \bar{x} + t.s/\sqrt{n}$$

Where: $\bar{x}$ is the mean, t is a statistical function based on sample size, s is standard deviation and n is the number of samples.

- 4.1.9. The Maximum Value Test is used to determine whether the maximum value of a determinand from a set of analyses is likely to have come from the same population as other concentrations for that determinand, or whether it is a statistical outlier (hot-spot).

- 4.1.10. If the value of T is smaller than some critical value, determined from statistical tables and based on the number of samples, the maximum value may be accepted (at the prescribed level of confidence) as a member of the underlying population from which the other results were drawn.

- 4.1.11. If T is greater than the critical value, the maximum value is treated as an outlier. This may indicate a hot-spot of contamination requiring additional investigation in order to reveal its extent. The Maximum Value Test uses the relationship:

$$T = (y_{\max} - \bar{y})/S_y$$

Where: $y_{\max}$ is the log of the maximum value of a population, $\bar{y}$ is the mean value of the logs of the population and S_y is the standard deviation from the mean of the logs of the population.

- 4.1.12. The S4UL used are those for the category of land use "residential", and an exposure demographic of a 0-6 year old female child.

- 4.1.13. Of the contaminants for which the S4ULs are currently available, none were identified as being present in levels exceeding respective S4UL criteria.

- 4.1.14. Samples assessed relative to the standard for topsoils given in BS3882:2015 Topsoil Specification.

4.2. Source-receptor linkage

Scenario	Source	Pathway	Receptor	Comments on potential pollution linkage	Risk?	Risk rating
Impact on health of future site users from contaminants within the shallow soils/made ground beneath the site	Potential contaminants from polycyclic aromatic hydrocarbons (PAH), metalloids	Dermal contact with soil or dusts, inhalation of vapours or dusts and ingestion of soils	End users of the site		Low risk	Low
Impact on health of construction workers	Potential contaminants from polycyclic aromatic hydrocarbons or metalloids	Dermal contact with soil or dusts, inhalation of vapours or dusts and ingestion of soils	Construction workers		Low risk	Low
Migration and accumulation of dusts to off-site receptors	Potential contaminants in the soil inclusive of PAH metalloids	Inhalation of dusts and/or vapours	Neighbouring properties or persons		Low risk	Low
Migration and accumulation of ground gases (e.g. methane CH ₄ and radon)	Methane gas and radon gas	Intrusion to habitable spaces	End users of the Site		Low risk	Low
Impact on ground water regime	Potentially contaminated soils	Pore-water in aquifer	End users of the site		Low risk	Low

5. RECOMMENDATIONS

- 5.1.1. Since none of the samples tested were shown to contain contaminants at levels exceeding the minimum threshold criteria provided in LQM/CIEH (2015) S4ULs for Human Health Risk Assessment criteria, and that the criteria provided in BS3889:2015 Topsoil Specification was met in terms of soil quality, no further actions are necessary.
- 5.1.2. A copy of all the test results are attached.

A handwritten signature in black ink, appearing to read 'R Gray', is positioned above the printed name.

Richard Gray BSc (Hons) FGS
RDM Environmental and Geotechnical Engineering Ltd

APPENDIX I

SITE LOCATION PLAN



Site location at Dovecot Close Congerstone Leicestershire



APPENDIX II

CONTAMINATION TEST RESULTS AND SUMMARY

Analytical Test Report	E26/07550/RDM/26-23994	Tested on Behalf of
Clients Project Reference	Dovecot Congelstone-Plot 3 RDM1282	RDM Environmental and Geotechnical Engineering
Clients Order Number	RDM1282	42 High Street
Sample(s) Analysed	3	Gretton
Sample(s) received / instructed	03/06/2026 / 03/06/2026	
Sample(s) Tested	04/06/2026 to 17/06/2026	
Report issued	17/06/2026	NN17 3DE
Report issue number	1	

Signed



James Gane
Analytical Services Manager

Notes:

General

This report shall not be reproduced except in full

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples were supplied by customer, results apply to the samples as received.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

U = UKAS Accreditation, M = MCERTS Accreditation, N = Unaccredited, SC = Subcontracted

E26/07550/RDM/26-23994

Dovecot Congelstone-Plot 3 RDM1282

Analytical Test Results - ENV Analysis Solids

Lab Reference					797619	797620
Client Sample ID					CTP1	CTP2
Client Sample Location					CTP1	CTP2
Client Sample Type					topsoil	topsoil
Client Sample Number					-	-
Depth - Top (m)					0.3	0.3
Depth - Bottom (m)					0.3	0.3
Date of Sampling					01/06/2026	01/06/2026
Time of Sampling					-	-
Sample Matrix					Clay	Clay
Determinant	Code	Units	LOD	Accreditation		
Arsenic	ICPMETS	mg/kg	10	M	< 10	< 10
Cadmium	ICPMETS	mg/kg	0.2	M	0.9	0.9
Chromium (III)	ICPMETS	mg/kg	1	N	15	13
Chromium (Total)	ICPMETS	mg/kg	1	U	16	14
Copper	ICPMETS	mg/kg	2	M	25	33
Lead	ICPMETS	mg/kg	1.5	M	39	58
Mercury	ICPMETS	mg/kg	2.5	U	< 2.5	< 2.5
Nickel	ICPMETS	mg/kg	1	M	24	20
Selenium	ICPMETS	mg/kg	8	N	< 8.0	< 8.0
Zinc	ICPMETS	mg/kg	2	M	72	110
Total Phenols	SKALARPHS	mg/kg	1	M	< 1.0	< 1.0
Cyanide (Total)	SKALARCNS	mg/kg	1	M	< 1.0	< 1.0
Chromium (Hexavalent)	SKALARHCS	mg/kg	1	N	< 1.0	< 1.0
pH	PHS	pH units	1	M	8.7	8.3
Water Soluble Sulphate (as SO4)	ANIONSS	mg/L	10	N	38	68
Sulphide	SULPHIDES	mg/kg	5	N	< 15	16
Total Sulphur Content (as S)	1377TS-ELT	%	0.01	U	0.05	0.06
Acenaphthene	PAHASRDS	mg/kg	0.02	M	< 0.02	< 0.02
Acenaphthylene	PAHASRDS	mg/kg	0.02	U	< 0.02	< 0.02
Anthracene	PAHASRDS	mg/kg	0.02	U	0.04	0.06
Benzo[a]anthracene	PAHASRDS	mg/kg	0.02	M	0.19	0.22
Benzo[a]pyrene	PAHASRDS	mg/kg	0.02	M	0.21	0.23
Benzo[b]fluoranthene	PAHASRDS	mg/kg	0.02	M	0.28	0.30
Benzo[ghi]perylene	PAHASRDS	mg/kg	0.02	M	0.17	0.17
Benzo[k]fluoranthene	PAHASRDS	mg/kg	0.02	M	0.09	0.10
Chrysene	PAHASRDS	mg/kg	0.02	M	0.20	0.24
Dibenzo[a,h]anthracene	PAHASRDS	mg/kg	0.02	M	0.04	0.04
Fluoranthene	PAHASRDS	mg/kg	0.02	M	0.38	0.50
Fluorene	PAHASRDS	mg/kg	0.02	M	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	PAHASRDS	mg/kg	0.02	M	0.14	0.16
Naphthalene	PAHASRDS	mg/kg	0.02	M	< 0.02	< 0.02
Phenanthrene	PAHASRDS	mg/kg	0.02	M	0.12	0.21
Pyrene	PAHASRDS	mg/kg	0.02	M	0.36	0.45
Total PAH (Sum of USEPA 16)	PAHASRDS	mg/kg	0.32	U	2.3	2.8

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Analytical Test Results - EPHVPHS

Lab Reference					797619	797620
Client Sample ID					CTP1	CTP2
Client Sample Location					CTP1	CTP2
Client Sample Type					topsoil	topsoil
Client Sample Number					-	-
Depth - Top (m)					0.3	0.3
Depth - Bottom (m)					0.3	0.3
Date of Sampling					01/06/2026	01/06/2026
Time of Sampling					-	-
Sample Matrix					Clay	Clay
Determinant	Code	Units	LOD	Accreditation		
Total TPH (>C8 to C10) [1]	TPHS	mg/kg	5	M	< 5.0	< 5.0
Total TPH (>C10 to C21) [1]	TPHS	mg/kg	10	M	< 10	< 10
Total TPH (>C21 to C40) [1]	TPHS	mg/kg	10	M	33	47
Total TPH (>C8 to C40) [1]	TPHS	mg/kg	15	M	40	55

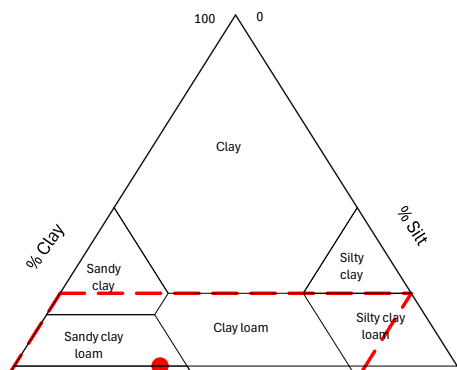
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Analytical Test Results - BS3882 Topsoil Analysis

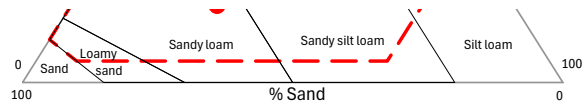
Lab Reference			797621					
Client Sample ID			CTP3					
Client Sample Location			CTP3					
Client Sample Type			topsoil					
Client Sample Number			-					
Depth - Top (m)			0.30					
Depth - Bottom (m)			0.30					
Date of Sampling			01/06/2026					
Time of Sampling			-					
Sample Description			Brown slightly gravelly silty clay with frequent organic matter					
Determinant	Units	Determined result	Multipurpose	Acidic	Calcareous	Low Fertility	Low Fertility - Acidic	Low Fertility - Calcareous
Soil Texture Class	-	Sandy loam	Y	Y	Y	Y	Y	Y
Maximum Coarse Fragment Content (% m/m)								
>2 mm	%	30	Y	Y	Y	Y	Y	Y
>20 mm	%	17	N	N	N	N	N	N
>50 mm	%	9	N	N	N	N	N	N
Mass loss on ignition % (varying with clay content);								
Clay 5-20%	%	11	Y	Y	Y	Y	Y	Y
Clay 20-35%	%							
Soil pH value	pH units	8.0	Y	N	Y	Y	N	Y
Carbonate (calcareous only)	%	4.4				Y		
Available Plant Nutrient Content								
Nitrogen	%	0.24	Y	Y	Y			
Extractable Phosphate	mg/l	52	Y	Y	Y	N	N	N
Extractable Potassium	mg/l	250	Y	Y	Y			
Extractable Magnesium	mg/l	180	Y	Y	Y			
Carbon: Nitrogen Ratio	-	27:1	N	N	N	Y	Y	N
Soil Electrical Conductivity	µScm-1	1960	Y					
Phytotoxic Contaminants (by soil pH)								
Zinc	mg/kg	74	Y	Y	Y	Y	Y	Y
Copper	mg/kg	19	Y	Y	Y	Y	Y	Y
Nickel	mg/kg	12	Y	Y	Y	Y	Y	Y
Visible Contaminants								
>2mm	%	0	Y	Y	Y	Y	Y	Y
...of which plastics	%	0	Y	Y	Y	Y	Y	Y
...man made sharps	%	0	Y	Y	Y	Y	Y	Y

Texture Classification Chart



Key
 - - - Area within which the texture of topsoil is required to fall
 • Sample classification

% Sand 55
 % Silt 27
 % Clay 18



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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
797619	CTP1	CTP1	SOIL	-	Brown silty clay with rare brick fragments rootlets	19	< 0.1	100
797620	CTP2	CTP2	SOIL	-	Dark brown silty clay with rare brick fragments rootlets	22	26	100
797621	CTP3	CTP3	SOIL	-	Brown slightly gravelly silty clay with frequent organic matter	-	-	70

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Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods Methods

Site addresses where testing is performed: Leicester - 7-11 Harding Street, Leicester, LE1 4DH

Poole - Unit D11, Admiralty Park, Station Road, Holton Heath, Poole, BH16 6HX & Unit 14B, Blackhill Road West, Holton Heath Trading Park, Poole, Dorset, BH16 6LE

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Site	Test Details
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Leicester	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)
3882CARB	BS3882:2015 Carbonate Annex E	Oven Dried	In Accordance with BS3882	Leicester	Determination of Carbonate Content in accordance with BS 3882
3882CON	BS3882:2015 Conductivity Annex H	Oven Dried	In Accordance with BS3882	Leicester	Determination of Conductivity in accordance with BS 3882
3882LOI	BS3882:2015 LoI Annex D	Oven Dried	In Accordance with BS3882	Leicester	Determination of LOI in accordance with BS 3882
3882PH	BS3882:2015 Soil pH	Oven Dried	In Accordance with BS3882	Leicester	Determination of pH in accordance with BS 3882
3882PHOS	BS3882:2015 Phosphate Annex F	Oven Dried	In Accordance with BS3882	Leicester	Determination of Extractable Phosphate Content in accordance with BS 3882
3882PHYTO	BS3882:2015 Phytotoxic Elements	Oven Dried	In Accordance with BS3882	Leicester	Determination of Phytotoxic metals in accordance with BS 3882
3882PLANT	BS3882:2015 Plant Nutrient Annex G	Oven Dried	In Accordance with BS3882	Leicester	Determination of Plant nutrients in accordance with BS 3882
3882PSD+VE	3882 Topsoil - PSD + Visual exam	Oven Dried	In Accordance with BS3882	Leicester	Determination of PSD and visual examination in accordance with BS 3882
3882SEDI	3882 Topsoil - Soil Texture Class	Oven Dried	In Accordance with BS3882	Leicester	Determination of soil texture class in accordance with BS 3882
3882TN	BS3882:2015 Total Nitrogen	Oven Dried	In Accordance with BS3882	Leicester	Determination of Total Nitrogen content in accordance with BS 3882
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Leicester	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
ICPMETS	MS - CL - ICP Metals	Air dried	Passing 10mm test sieve	Leicester	Determination of metals in soils via ICP
PAHASRDS	MS - CL - PAH (As Received)	As received	Passing 10mm test sieve	Leicester	Determination of Polyaromatic hydrocarbons in soil via GC-MS
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Leicester	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Leicester	Preparation of samples (including determination of moisture content) to allow for subsequent analysis

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Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods Methods

Site addresses where testing is performed: Leicester - 7-11 Harding Street, Leicester, LE1 4DH Poole - Unit D11, Admiralty Park, Station Road, Holton Heath, Poole, BH16 6HX & Unit 14B, Blackhill Road West, Holton Heath Trading Park, Poole, Dorset, BH16 6LE

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Site	Test Details
SKALARCNS	MS - CL - Cyanide by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of cyanide (total / free / complex) in soil using a Skalar segmented flow analyser
SKALARHCS	MS - CL - Hexavalent Chromium by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of hexavalent chromium in soil using Skalar segmented flow analyser
SKALARPHS	MS - CL - Phenols by Skalar	As received	Passing 10mm test sieve	Leicester	Determination of total phenols in soil using Skalar segmented flow analyser
SULPHIDES	MS - CL - Sulphide in Soils	Air Dried	Passing 10mm test sieve	Leicester	Determination of sulphide in soil via titration
TPHS	MS - CL - TPH (GC-FID)	As received	Passing 10mm test sieve	Leicester	Determination of Total Petroleum Hydrocarbons in soil using GC-FID

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HWOL TPH Acronym Index

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics and Aromatics
AL	Aliphatics Only
AR	Aromatics Only
2D	GC-GC - Double Coil Gas Chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (except for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Key of Codes	
[1]	EH_1D_TOTAL
[2]	EH_CU_1D_TOTAL
[3]	EH_CU+HS_1D_TOTAL
[4]	EH_1D+HS_MS_TOTAL
[5]	HS_MS_1D_AL
[6]	HS_MS_1D_AR
[7]	HS_MS_1D_TOTAL
[8]	EH_CU_1D_AL
[9]	EH_CU_1D_AR
[10]	EH_2D+HS_1D_TOTAL
[11]	EH_CU_2D+HS_1D_TOTAL
[12]	EH_2D_TOTAL
[13]	EH_2D_AL
[14]	EH_2D_AR
[15]	EH_CU_2D_TOTAL
[16]	EH_CU_2D_AL
[17]	EH_CU_2D_AR

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Additional Method Notes

Method	Notes
TRL 447 Suite	1. Sample preparation was in accordance with TRL 447 Appendix C. 2. Testing was carried out in accordance with methods 1, 2 and 4 of TRL 447 2001 (Updated 2005). 3. Oxidisable sulphides and total potential sulphate have been calculated in accordance with TRL 447, Appendix C Test 4. Values are reported against a dry mass of sample passing a 2mm test sieve after oven drying, where required material retained on the 2mm test sieve was recombined with the test portion prior to analysis.
BS1377 Acid Soluble Chloride	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016 2. Testing was in accordance with BS 1377 : Part 3 : 2018 + A1: 2021, acid soluble method. 3. Some information required by BS 1377 has not been reported. This information is available on request.
BS1377 Loss on Ignition	Testing was in accordance with BS 1377: Part 3: 2018 + A1: 2021 Clause 6. Determination of the mass loss on ignition. Some information required by BS1377: 2016: Part 1 has not been reported. This information is available on request.
BS1377 Organic Matter Content	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016 2. Testing was in accordance with BS 1377: Part 3 : 2018 + A1: 2021 Clause 4. 3. The reported % organic content is the average organic matter content present in the soil fraction passing the 2mm test sieve to the nearest 0.1% of the original oven dry mass of soil. 4. Some information required by BS 1377 has not been reported. This information is available on request.
BS1377 pH Value	pH testing was in accordance with BS 1377 : Part 3 : 2018 + A1: 2021 Clause 12
BS1377 Sulphate (acid soluble)	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016. 2. Sulphate testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.9 & 7.5. 3. Some information required by BS 1377 has not been reported. This information is available on request.
BS1377 Total Dissolved Solids	Determination of TDS in accordance with BS 1377: Part 3
BS1377 Total Sulphur	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016.
BS1377 Water Soluble Chloride	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016 2. Testing was in accordance with BS 1377 : Part 3 : 2018 + A1: 2021, Clause 7.2, water soluble method. 3. Some information required by BS 1377 has not been reported. This information is available on request.
BS1377 Sulphate (water soluble) (ICP-OES)	1. Sample preparation was in accordance with BS 1377 : Part 1 : 2016. 2. Sulphate testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.3 & 7.5. 3. pH of the water extract was not recorded. 4. Some information required by BS 1377 has not been reported. This information is available on request.
EN1744 Acid Soluble Sulphate	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 12. Analysis subcontracted to a UKAS accredited laboratory
EN1744 Total Sulphur by HTC (Cl. 11.2)	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 11.2 Analysis subcontracted to a UKAS accredited laboratory
EN1744 Total Sulphur (Cl. 11.1)	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 11. Analysis subcontracted to a UKAS accredited laboratory
EN1744 Water Soluble Chloride	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 7 (Reference Method). Analysis subcontracted to a UKAS accredited laboratory

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Additional Method Notes

Method	Notes
EN1744 Water Soluble Sulphate	Testing was in accordance with BS EN 1744-1:2009 + A1:2012 clause 10. Analysis subcontracted to a UKAS accredited laboratory
Oxidisable Sulphides Calculation (HTC)	Calculated in accordance with TRL 447 using results determined in accordance with EN1744
Oxidisable Sulphides Calculation (Grav)	Calculated in accordance with TRL 447 using results determined in accordance with EN1744
Total Potential Sulphate (Calc from 1744 Total S)	Derived from the Total sulphur concentration determined in accordance with EN1744.
BS1881 Alkali (Na ₂ O + K ₂ O)	1. Testing was in accordance with BS 1881: Part 124: 2015 Clause 12.3. 2. A concrete density of 2300kg/m³ was used in the calculation of equivalent sodium oxide content per m³ of concrete. 3. Samples received were smaller than required by Clause 4.1 of BS 1881 : Part 124 :2015. 4. Quality control samples are tested with each batch of samples.
BS1881 Calcium Oxide Content (EDTA Titration)	1. Testing was in accordance with BS 1881: Part 124: 2015 Clause 6.4. 2. Cement content (%m/m) has been calculated assuming the presence in the concrete of Ordinary Portland Cement, containing 64.5% by mass of Calcium Oxide. 3. Samples of the original constituents of the mix were not submitted. 4. Samples received were smaller than required by Clause 4.1 of BS 1881 : Part 124 :2015. 5. Quality control samples are tested with each batch of samples. 6. Samples were identified as being part of a batch and therefore the results are from a single analysis only.
BS1881 Cement Content (ICP method)	1. Testing was in accordance with BS 1881: Part 124: 2015 Clause 6.5 by ICP. 2. Cement content has been calculated assuming the presence in the concrete of Ordinary Portland Cement, containing 20.2% and 64.5% by mass of soluble silica and calcium oxide respectively. 3. Samples of the original constituents of the mix were not submitted. 4. Samples received were smaller than required by Clause 4.1 of BS 1881 : Part 124 :2015. 5. Quality control samples are tested with each batch of samples. 6. Samples were identified as being part of a batch
Chloride in Concrete by Aquakem (Acid Soluble)	1. Testing was in accordance with in house method statement MS - CL - Chloride in Hardened concrete by Aquakem. 2. Samples were not passed over the 125micron BS Test Sieve before testing. 3 Quality control samples are tested with each batch of samples.
Moisture Content of Grout Mortar & Concrete	1. Testing was in accordance with in house method statement MS Moisture Content of Grout, Mortar and Concrete
MS - Sulphate in Hardened Concrete by ICP	1. Testing undertaken in accordance with in house method statement MS - Sulphate in hardened concrete by ICP. 2. Samples received were smaller than required by Clause 4.1 of BS 1881 : Part 124 :2015. 3. Quality control samples are tested with each batch of samples.
BS1881 Water Cement Ratio	1 Testing was in accordance with BS 1881: Part 124: 2015+A1:2021. 2. Cement content was determined in accordance with BS 1881: Part 124: 2015+A1:2021 Clause 6.5 by ICP. 3. Samples of the original constituents of the mix was/was not submitted. 4. Original water/cement ratio has been calculated in accordance with BS 1881: Part 124: 2015+A1:2021 Clause 9.6. 5. Samples received were smaller than required by Clause 4.1 of BS 1881 : Part 124 :2015+A1:2021.

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Additional Method Notes

Method	Notes
BS4551 Mix Proportion	1. Sample preparation was in accordance with BS4551 2005 + A2:2013 Clause 7. 4.5. 2. Testing was in accordance with BS 4551: Part 2: 2005 + A2:2013 Clause 7.5.3 and 7.5.3.4. 3. Cement content has been calculated assuming the presence in the mix of Ordinary Portland Cement containing 20.2% and 64.5% by mass of soluble silica and calcium oxide respectively.
BS6463-102 Neutralizing Value	Testing was undertaken in accordance with an in house method statement based on BS6463-102
BS3882:2015 Specification for topsoil	Testing was undertaken in accordance with the methodologies within BS3882:2015
BS8601:2013 Specification for subsoil	Testing was undertaken in accordance with the methodologies within BS8601:2013
Depth of Carbonation (BS EN 14630:2006)	1. Testing was carried out in accordance with BS EN 14630:2006 Depth of Carbonation. 2. Testing was carried out in the laboratory. 3. Indicator Solution Used– 1g of Phenolphthalein powder dissolved in a solution of 50ml of Methylated Spirits and 100ml of deionised water
HAC	1. Testing was in accordance with BRE Information Sheet IS 15/74. 2. Contaminated samples may give a false result. 3. Samples taken from extensively carbonated concrete containing Portland Cement may give a false positive result. 4. If conclusive identification of the presence of High Alumina Cement is required this result should be confirmed by a more definitive test.
pH Value of Concrete	1. Testing was in accordance with in house method statement MS – pH Value of Hardened Concrete, Grout and Water from voids
Sub - EN1744 Sulphide	Analysis was in accordance with BS EN 1744-1 : 2009 + A1 : 2012, clause 13 and subcontracted to a UKAS accredited laboratory for this test

APPENDIX III

1. This report has been prepared and written specifically for the Client named in the introduction and is exclusively for his/her/their benefit. No reliance may be placed in the contents of this report by any third party except with the express agreement of the original Client and the written agreement of RDM. Such written agreement may require the payment of an additional fee.
2. The Executive Summary and Recommendations sections of this report only provide an overview of the guidance and should not be specifically relied upon in their own right but should be considered in relation to the whole report and the development described in this report.
3. This report has been prepared and written in the context of the proposals for the development of the site as stated by the Client and will not be valid in a differing context. Furthermore, new information, improved practices, or legislation may necessitate alterations to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of this report, it should be referred to us for re-assessment.
4. The assessment and interpretation of contamination and associated risks are based upon the scope of the work described in the fee proposal and agreed with the client, the report may not be sufficient to fully address the contamination or allow a detailed remediation scheme to proceed without further investigation or analysis.
5. Any assessments made in this report are based on the ground conditions and as revealed by the test pits and boreholes together with the results of any field or laboratory testing undertaken and where appropriate other relevant data which may have been obtained for the site. The sources of such information are detailed in this report and while RDM use only such sources as are believed to be reliable, RDM will not be liable for the authenticity or reliability of information obtained from others.
6. Notwithstanding that factual reports from third parties concerning asbestos or mould of any kind may have been included for information purposes in this report, RDM will have no liability whatsoever for any claim or claims arising related to asbestos or mould of any kind.
7. There may also be special conditions appertaining to the site which were not revealed by the investigation and which will not, therefore, have been taken into account in this report. Any assessments may be subject to amendment in the light of additional information becoming available.
8. Whilst an opinion may be expressed or implied in this report on possible configurations of strata between or beyond test pit or borehole locations, or on the possible presence of features based on either visual, verbal or published evidence, this is for guidance only and no liability can be accepted for the accuracy of such opinions.
9. Comments on groundwater conditions will have been based on observations made only at the time of the investigation unless otherwise stated. It should be noted, however, that groundwater levels vary due to seasonal and other effects.
10. This report is not a site categorisation, and hazards could occur which have not been detected.
11. Where data has been provided or is made available to RDM and this has been used in the report, it has been assumed that the information is correct. No responsibility can be accepted by RDM for inaccuracies within the data supplied.
12. The copyright in this report and other related plans and documents prepared by RDM is owned by them and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of the report may however be made and distributed by the Client as an expedient in dealing with matters related to its commission.
13. This report has been prepared solely for the client's purposes in obtaining planning permission and discharge of the planning conditions related to the proposed development indicated in the report. The discharge of these conditions does not constitute that the site could be determined under Part IIA of the Environmental Protection Act 1990.