

28th November 2024

Our reference: 52022 SP01 (00)

Taylor Wimpey South East
101-103 Tonbridge Road
Hildenborough
Tonbridge
TN11 9HL

For the attention of Mr Keith Ansell

Re: Shorncliffe Garrison – Risborough Barracks:

Reassurance Stockpile Testing Visit #1

1. INTRODUCTION

RSK Environment Ltd (RSK) have been retained by Taylor Wimpey South East Ltd to undertake a supplementary stockpile testing of site-derived soils across the Risborough Barracks residential development, part of the former Shorncliffe Garrison, Folkestone, Kent.

As per Section 7.1, requirements of the Detailed Remedial Strategy (ref: 52022 R09 (00), RSK dated February 2022), state that the validation of stockpiled soils shall be undertaken at a frequency of one (1no.) sample per 250 m3 prior to placement.

This letter report details works conducted by RSK in order to validate the suitability for re-use of two (2no.) site derived stockpiles namely, Stockpile A comprising site-won Topsoils and Stockpile E comprising site-won Subsoils.

This letter report is subject to the RSK service constraints given in **Appendix A**.

2. BACKGROUND

The Shorncliffe Garrison site comprises a number of former Ministry of Defence (MOD) land parcels divested for future residential development.

In 2013, RSK undertook preliminary exploratory works across a number of land parcels, on behalf TWSE, in order to establish the prevailing ground conditions and advise on any future works required (ref. 26387 R01 (01), RSK, 2013).

In 2016, RSK were commissioned to undertake further detailed exploratory works to refine the conceptual site model and provide recommendations for future foundation design (ref. 27313 R03 (00), RSK, 2016).

Following the refinement of the site conceptual site model, in 2018 RSK produced a drawing containing the Outline Remedial Strategy required to ensure the land is suitable for its intended end use (ref. 29180-(GN#6) 00).

In February 2022, RSK were commissioned to prepare a Detailed Remediation Strategy for the land Risborough Barracks (ref. 52022 R09 (00), RSK 2022) within which six (6no.) Key Objectives were stated, namely:

1. Exploratory works within the northern extents of the subject site
2. Post-demolition inspection of soils located beneath existing buildings infrastructure
3. Localised hotspot removal (RBWS103, WS10, RBTP104), including supplementary delineative works
4. Material segregation and assessment for physically and or chemically unsuitability (WS9)
5. Installation of a 'clean capping system' (450-600mm) where Made Ground is retained and deemed physically and or chemically unsuitable; and,
6. Verification inspections and testing including sampling of site-derived soils (topsoil and subsoil) destined for re-use as part of the proposed development.

Key Objectives 1-4 have been addressed under subsequent letter reports referenced L27, L29, L30, L33. Key Objective 5 continues to be addressed under a series of individual validation letter reports (referenced GV), submitted as the development progresses.

This letter report provides details the validation testing of site-derived topsoils and subsoils destined for re-use within areas of proposed soft-landscaping, in order to address Key Objective 6.

3. SITE WORKS

A suitably qualified RSK engineer attended site on 19th November 2024 to inspect soils and collect representative soil samples for subsequent laboratory analysis and assessment.

Representative soil samples of both stockpiled topsoils and subsoils were collected via mechanical excavator. Stockpile and sample locations have been depicted as **Figure 1** of this letter report.

3.1 Stockpiled soils

It is understood that Stockpile A comprises site-won Topsoil derived the previously unoccupied northern extents the subject site. Stockpile E comprises site-won Subsoil derived from numerous drainage and foundations excavations.

A summary description of the soils encountered has been provided in **Table 1** below. A photographic log of the works completed, and soils encountered has been presented as **Appendix B**.

Table 1: Summary of Ground Conditions

Stockpile	Volume (m ³)	Description
Stockpile A (topsoil)	1,840	Dark brown silty clayey medium SAND.
Stockpile E (subsoil)	408	Light brown slightly gravelly sometimes clayey medium SAND. Gravel is subangular fine to coarse sandstone.

No visual or olfactory evidence of contaminative impact was identified within any of the soils encountered as part of these verification works.

3.2 Laboratory analysis and assessment

In total, thirteen (13no.) representative soils samples were collected for subsequent laboratory analysis, ten (10no.) topsoil samples from Stockpile A and three (3no.) subsoil from Stockpile E.

For conservatism, all soil laboratory results were initially compared against RSK adopted validation acceptance criteria (VAC) for 'private gardens' in accordance with Table 3 of the Detailed Remediation Strategy (RSK, 2022).

Copies of laboratory analysis certificates have been presented as **Appendix C**. For ease of reference, a copy of the adopted VAC's has been presented as **Appendix D** of this letter report

Two (2no.) of the topsoil samples submitted from Stockpile A exceeded RSK adopted VACs for residential end-use.

In all instances, exceedances were marginal individual PAH speciates, including:

- SPA-5 for Benzo(b)fluoranthene

- SPA-5 for Dibenz(a,h)anthracene

In order to address these marginal PAH exceedances additional risk assessment was undertaken using PAH surrogate marker profiling. This approach is supported by CL:AIRE (2014a), Bull & Collins (2013) and the Health Protection Agency (2010; now Public Health England).

In brief, with the surrogate marker approach for PAH, exposure to the surrogate marker is assumed to represent exposure to all the genotoxic PAHs in the soil matrix, and the level of toxicity of the surrogate marker represents the toxicity of the PAH mixture within the soil matrix. Benzo(a)pyrene is reported to be present in all samples that have been tested and that are being evaluated as part of this risk assessment, and the relative ratio of the seven genotoxic PAH to BaP in the sample population is within the upper and lower limits recommended by the Health Protection Agency (2010).

In all instances, concentrations of benzo(a)pyrene within site-derived topsoils (Stockpile A), remained below RSK adopted thresholds for residential end-use with home-grown produce and as such, based on this assessment, RSK conclude that the risk posed to future end-users from topsoils containing genotoxic PAHs are considered 'low' and therefore deemed suitable for end-use.

5. CONCLUSIONS

Based upon the information obtained as part of this stockpile reassurance testing, RSK are satisfied that both Stockpile A (topsoils) and Stockpile E (subsoils) are suitable for reuse within all areas of proposed soft-landscaping including private gardens and communal areas/public open space alike.

Should you have any queries with the content of this report, please do not hesitate to contact.

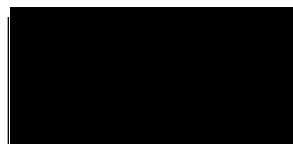
Yours sincerely,

For RSK Environment Ltd



Josh Curnow

Geo-Environmental Engineer



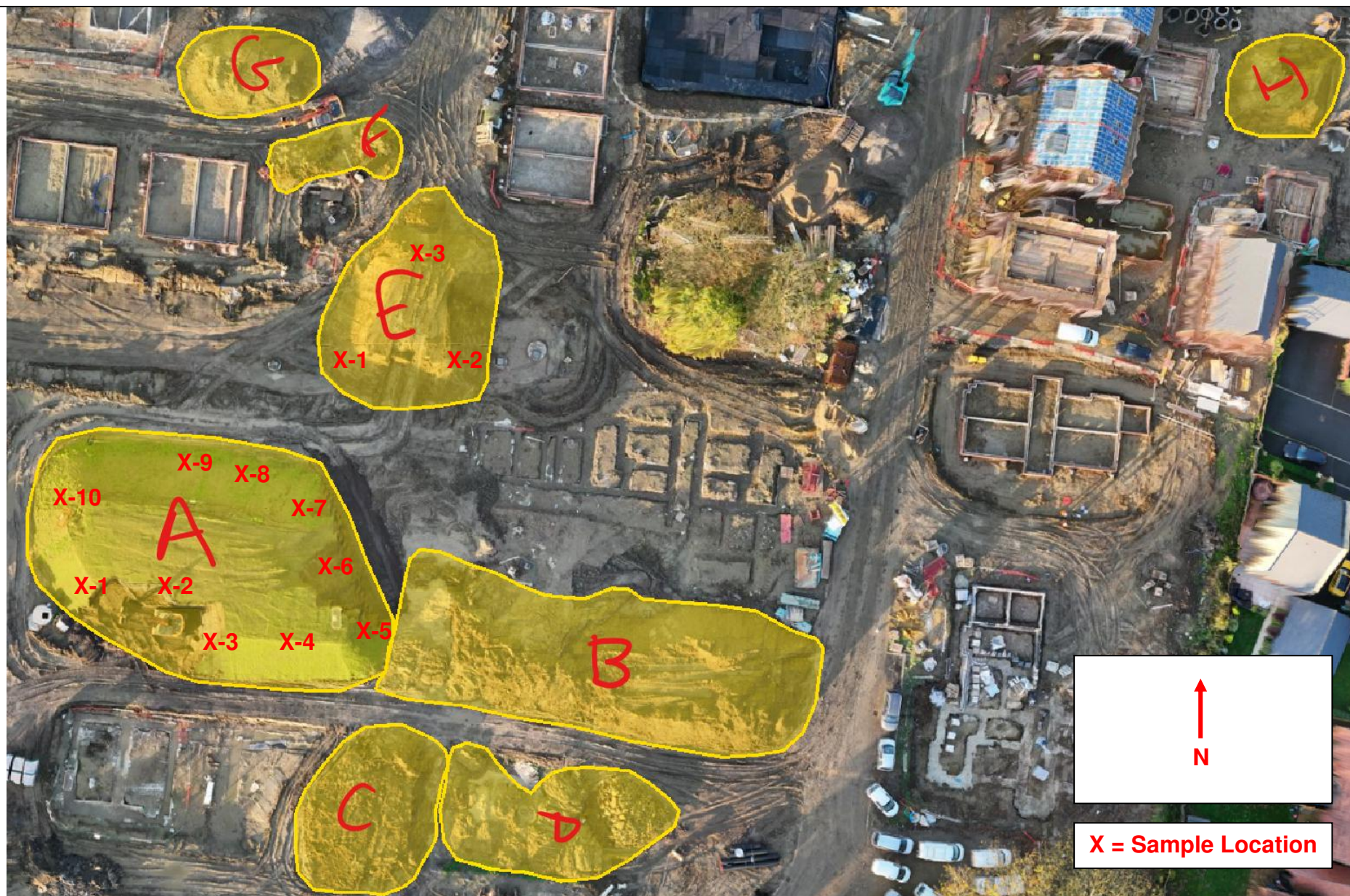
Niki Dubber

Principal Geo-Environmental Engineer

Enclosures:

Figure 1	Sample location plan
Appendix A	Service Constraints
Appendix B	Photographic Record
Appendix C	Chemical Testing Laboratory Certificates
Appendix D	Validation Acceptance Criteria (VAC)

FIGURES



APPENDIX A

SERVICE CONSTRAINTS

APPENDIX A

SERVICE CONSTRAINTS

1. Service Constraints for all Reports

1.1. This Report (the "Report") and any study, inspection, investigation, sampling, testing and or interpretation carried out in connection with the Report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) trading as Carbon Zero Consulting, Leap Environmental or RSK Geosciences, for the Client named in the first paragraph of the Report (the "Client") in accordance with the terms of an RSK Fee Proposal including RSK Environment Standard Terms and Conditions (the "Appointment") between RSK and the Client, unless otherwise stated in the first paragraph of the Report. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by a geo-environmental consultant at the time the Services were performed. Nothing in this Report shall be construed as imposing any fitness for purpose obligation. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the Client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.

1.2 Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services. RSK shall not be liable in respect of any action or proceedings arising out of or in connection with this Report whether in contract, in tort, for breach of statutory duty or otherwise after the expiry of six (6) years from either (i) the date of the Report or (ii) such earlier date as prescribed by law, unless varied in the terms of the Appointment.

1.3 Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent, or condone any party, other than the Client relying upon the Services. Should this Report or any part of this Report, or details of the Services or any part of the Services, be made known to any such party, and such party relies thereon, that party does so wholly at its own and sole risk, and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent geo-environmental consultant and/or lawyer.

1.4 The Client shall not, without the prior written consent of RSK, assign, transfer, charge, mortgage, subcontract, or deal in any other manner with all or any of the benefits provided in this Report. Unless specified in the Appointment, RSK shall not be obliged to assign the benefit of the Report whether by collateral warranty, third party rights pursuant to the Contracts (Rights of Third Parties) Act 1999, letter of reliance or otherwise. If RSK agrees to any assignment of the benefit of this Report, in whatever form, benefits to third parties through collateral warranties, third party rights or letters of reliance shall not be provided unless a fee for each right, warranty or letter is agreed. The form of wording used in the warranty or letter shall be provided by RSK for agreement by the Client. Any reasonable changes to the form of wording will be implemented by mutual agreement, however the terms in the warranty or letter cannot offer the third party any greater benefit than the Appointment offered to the Client.

1.5 It is the understanding of RSK that this Report is to be used for the purpose described in the introduction to the Report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the Report is used, or the proposed use of the site change, this Report may no longer be valid and any further use of or reliance upon the Report in those circumstances by the Client without the review and advice of RSK shall be at the Client's sole and own risk. RSK shall not be liable for any use of this Report for any purpose other than that for which it was provided.

1.6 The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions contained in this Report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the Report in the future shall be at the Client's own and sole risk.

1.7 The observations and conclusions described in this Report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out, or required by the Appointment between the Client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this Report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, fuel storage, persistent bio-accumulative or toxic chemicals (including PFAS and related compounds) or other radioactive or hazardous materials, unless specifically identified in the Services.

1.8 The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of desk based publicly available information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services and the limitations below:

- a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
- b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.
- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the Client or third parties, including laboratories and information services, during the performance of the Services.
- d. The Client has identified in writing to RSK, the information, reports, findings, surveys and preliminary works RSK may not rely upon when providing the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK, and including the doing of any independent investigation of the information provided to RSK, save as otherwise provided in the terms of the Appointment between the Client and RSK.

1.9 Any site drawing(s) provided in this Report is (are) not meant to be an accurate base plan for scale measurement but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for accurate setting out and should be considered indicative only.

1.10 Should RSK be requested to review the Report after the date of issue of this Report, RSK shall be entitled to additional payment at the existing rates, or such other terms as agreed between RSK and the Client.

2. Service Constraints where the Report provides an intrusive assessment of ground conditions:

2.1 The intrusive environmental ground investigation aspects of the Services are a limited sampling of soil from the site, at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this Report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together

with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope agreed between the Client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species (not tested) are not present.

2.2 The comments given in this Report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. The extent of the exploratory holes, laboratory testing and monitoring undertaken may have been restricted due to a number of factors including accessibility, the presence of buried or overhead services, current development, site usage, timescales or the Client's specification. The exploratory holes only assess a small proportion of the site area with respect to the site as a whole, and as such may only provide an indicative assessment of ground conditions on site. There may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised. The presence of hotspots of undisclosed contamination or exceptional and unforeseen ground conditions cannot be discounted.

2.3 Where the Services include Investigation of an exploratory nature or relating to physical ground works, any costings and prices provided in the Report are estimated and provided for guidance purposes only. The actual cost and time quantities shall be remeasured and shall be dependent upon the ground or other conditions, constraints present, and number and depth of the investigation locations, which shall influence the number of samples and tests required, and the quantities of soil being classified.

2.4 Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works. However, this Report does not constitute an asbestos survey. On this basis, the presence of asbestos on site cannot be discounted and a full asbestos survey should be undertaken.

2.5 Unless stated otherwise, only preliminary geotechnical recommendations are presented in this Report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed. Eurocode 7 gives guidance on the type of sampling, sample quality, number and spacing of intrusive investigations, and number of laboratory tests required. It is intended that the Geotechnical Information section of this Report will fulfil the general requirements of the Ground Investigation Report as set out in section 6 of Eurocode7, although this is subject to the restrictions imposed on the investigation, as listed above. For geotechnical design, Eurocode 7 requires the Geotechnical Design Report to address both the geotechnical and structural aspects of the geotechnical design for both the limit and serviceability states. The Geotechnical Appraisal section of this Report will not meet the requirements of a Geotechnical Design Report (GDR) and should therefore be used for preliminary guidance only.

3. Service Constraints where the Report relates to Surface Water Management:

3.1 The Surface Water Management Inspection (SWMI) Report, documents provided, observations, actions, and recommendations, with respect to the management of potential pollution issues to surface waters, made during the site Inspection visit, are those present at the time of the visit, and may not represent those recorded by others on the same day.

3.2 The comments given in this Report and the opinions expressed are based on the weather, ground and ground water conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not

been disclosed by the inspection and therefore could not be taken into account. In addition, groundwater levels and flows, may vary from those Reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.

3.3 RSK places a degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this Report was prepared.

3.4 This Report is a live document, to be continually reviewed and updated as the development progresses or other changes occur on site. RSK can only maintain the currency of this Report through the Client requesting support with supplementary site visits or attendance at meetings ahead of key stages of the development in relation to surface water management. Our risk rating assesses a number of risk factors in line with the source-pathway- receptor model and is therefore subject to constant change.

3.5 Standard design drawings are indicative. Material types, dimensions and construction details will need to be adjusted by the Client to suit the specific conditions / flows on Site.

3.6 The full responsibility for implementing the site-specific protection and maintenance measures to protect the surface water system as stated in this Report, remains with the Client and their site management team. Additional control measures may be required to achieve the objectives set out in the Surface Water Management Plan to be implemented and financed by the Client.

4. Service Constraints where the Report relates to Waste Management:

4.1 In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not considered waste if re-used on the site of origin for the purposes of development. Soils such as made ground that are not of clean and natural origin (irrespective of whether they are contaminated or not) and other materials such as recycled aggregate, do not necessarily become waste until the criteria above are met. Excavation arisings from the development may therefore be classified as waste if surplus to requirements and/or unsuitable for re-use.

4.2 It is the duty of the waste producer, to ensure that all waste is accurately classified prior to waste disposal. Technical Guidance WM3 (EA, 2018) sets out in its Appendix D requirements for waste sampling. It is a legal requirement to correctly assess and classify waste. The level of sampling should be proportionate to the volume of waste and its heterogeneity. Unless otherwise stated, the waste assessment presented in this Report should be considered as preliminary and further testing and assessment of the waste under the provisions of a Waste Sampling Plan may be required to obtain the necessary level of data required for basic characterisation of the waste in support of disposal.

4.3 Unless stated otherwise in the Report, information relating to historical operations at the site was not reviewed as part of the assessment by RSK. In addition, unless otherwise stated in the Services, RSK was not present during the collection of the samples nor had any input on the chemical testing suite. Therefore, the waste assessment and classification detailed in this Report are based solely on any information that were provided to RSK (e.g., laboratory chemical data, exploratory hole records) and were completed without prejudice for our Client.

4.4 RSK's assumes that any ground investigation data, chemical testing results etc., that were provided by the Client to inform the waste assessment and supporting review were carried out in accordance with current best practice and relevant guidance/ standards, where applicable. Thus, the comments given in this Report and the opinions expressed are based solely on the information provided by the Client. However, it is noted that there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account as part of the RSK assessment.

5. Service Constraints for Construction Environmental Management Plan Reports:

5.1 This Report should be considered in the light of any changes in legislation, statutory requirement or industry practices that may have occurred subsequent to the date of issue.

5.2 The measures and comments outlined in this Report and any opinions expressed are based on the plans provided at the time and discussions with relevant parties. However, there may be conditions pertaining to the site that have not been disclosed by investigations and therefore could not be taken into account.

5.3 This CEMP is a live document and is subject to change throughout the project, as and when necessary, to ensure management of environmental aspects remains relevant, and to ensure continued compliance with legislation and commitments as they may change. RSK understands that this CEMP will be reviewed by the Client every six months and updated as and when necessary.

5.4 It is the full responsibility of the Principal Contractor/ Client to ensure that their works do not contravene legal requirements, and adherence to this CEMP alone cannot be a full defence regarding legal action against the Principal Contractor.

6. Service Constraints where the Report relates to Ground Gas Membrane Verification:

6.1 This Report is limited to the verification of the gas resistant membrane/vapour membrane/radon barrier after installation and no inspections were undertaken of the substrate (i.e. prepared ground). The Report therefore does not constitute as a full verification of ground gas protection system.

6.2 The comments given in this Report and the opinions expressed, are based on the condition of the ground gas membrane as encountered at the time of inspection by suitably qualified personnel. RSK cannot accept liability for any subsequent change to the status of the gas membrane by follow-on trades or other construction activity.

6.3 Where not designed by RSK, the verification of protection measures is carried out with reference to the gas protection design provided by the Client. RSK assume the scope of gas protection measures as determined by third parties to be correct and to have achieved any required approval from authorities.

6.4 The Ground Gas Design Report/Remediation Strategy and Verification Plan contains details of the procedures to be adopted for inspection and validation of the works. However, it should be noted that responsibility for the correct implementation of the strategy lies with the appointed contractor. RSK cannot be held responsible for any remedial works that are carried out without the agreed procedures involving either direct supervision by RSK, or inspection and validation of the works by a representative from RSK.

7. Service Constraints for Environmental Due Diligence (EDD) Reports:

7.1 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the site, therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information.

7.2 This Report describes the results of the EDD exercise. The scope of this EDD Report, where appropriate, covers legal or regulatory compliance with respect to UK or international regulations associated with environmental matters.

7.3 As with any EDD exercise, there is a certain degree of dependence upon information provided by the target company. The EDD does not include a site walkover / visit or liaison with site representatives unless identified in the Services. Therefore, the assessment is based on the available desk study information. Also, there is a certain degree of dependence upon oral information provided

by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this EDD exercise was performed.

7.4 This Report, including all supporting data and notes (collectively referred to hereinafter as "information"), was prepared or collected by RSK for the benefit of its Client.

7.5 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment and the site inspection visit. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the Site therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information and observations collected during the site inspection visit.

8. Service Constraints for Ground source heat energy Reports:

8.1 It is understood that this is a desktop survey only and that there are no requirements for a site walkover, service utility survey, or provision of service plans. These services can be provided upon request if required.

8.2 At a later stage, it is possible that a thermal response test (TRT) will need to be completed, for which a test borehole will have to be drilled, and these would be costed at the time. RSK can provide all aspects of subsequent site work for a GSHP system if required.

9. Service Constraints for Water Abstraction Borehole Reports:

9.1 The Report aims principally to only identify and assess the suitability of the site for a water abstraction borehole. This Report should be considered in the light of any changes in legislation, statutory requirements, and industry practices, that have occurred subsequent to the date of the Report.

9.2 Unless stated in the Report, the opinions expressed in this Report including all comments and recommendations provided are on the basis of the information obtained from a desk-based assessment.

APPENDIX B

PHOTOGRAPHIC RECORD

Client name:
Taylor Wimpey South East

Site Location:
Risborough Barracks

19.11.2024

Photo No. 1

Direction Photo Taken:
North east

Description:
Stockpile A overview.



Photo No. 2

Direction Photo Taken:
South east

Description:
Stockpile A overview.



Photo No. 3	
Direction Photo Taken: North	
Description: Stockpile E overview.	

APPENDIX C

LABORATORY CERTIFICATES



Josh Curnow
RSK
Anerley Court
Half Moon Lane
Hildenborough
Tonbridge
Kent
TN11 9HU

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-13988

Site Reference: Risborough Barracks, Shorncliffe Garrison

Project / Job Ref: 52022

Order No: None Supplied

Sample Receipt Date: 20/11/2024

Sample Scheduled Date: 20/11/2024

Report Issue Number: 1

Reporting Date: 25/11/2024



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 1	SP A - 2	SP A - 3	SP A - 4	SP A - 5
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751473	751474	751475	751476	751477

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.5	7.5	7.2	7.9	7.2
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	562	369	588	737	799
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.06	0.04	0.06	0.07	0.08
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	74	37	77	128	101
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.07	0.04	0.08	0.13	0.10
TOC (Total Organic Carbon)	%	< 0.1	MCERTS		2	2.7	1.8	3.1
Arsenic (As)	mg/kg	< 2	MCERTS	6	6	6	7	6
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.3	0.2	< 0.2	0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	14	11	13	15	12
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	13	14	20	19	16
Lead (Pb)	mg/kg	< 3	MCERTS	44	58	70	49	64
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	15	14	15	19	14
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	57	56	88	82	89

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~Sample details provided by customer and can affect the validity of results



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 6	SP A - 7	SP A - 8	SP A - 9	SP A - 10
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751478	751479	751480	751481	751482

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.4	7.2	7.2	6.7	6.8
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	624	451	390	329	379
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.06	0.05	0.04	0.03	0.04
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	85	64	32	17	18
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.09	0.06	0.03	0.02	0.02
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	2.5		1.7	1.5	1.6
Arsenic (As)	mg/kg	< 2	MCERTS	6	6	5	5	6
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	13	12	13	12	14
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	16	12	11	9	12
Lead (Pb)	mg/kg	< 3	MCERTS	56	47	34	29	45
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	15	14	14	14	16
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS	82	55	41	39	55

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

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Maidstone
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Soil Analysis Certificate						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24		
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP E - 1	SP E - 2	SP E - 3		
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris		
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/11/2024	DETS Sample No	751483	751484	751485		

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	7.4	7.6	7.5		
Total Sulphate as SO ₄	mg/kg	< 200	MCERTS	286	480	338		
Total Sulphate as SO ₄	%	< 0.02	MCERTS	0.03	0.05	0.03		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	43	86	74		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.04	0.09	0.07		
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.4	0.6	0.4		
Arsenic (As)	mg/kg	< 2	MCERTS	6	7	7		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	14	14	15		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	4	6	5		
Lead (Pb)	mg/kg	< 3	MCERTS	7	13	10		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	22	20	22		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Zinc (Zn)	mg/kg	< 3	MCERTS	32	49	37		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~Sample details provided by customer and can affect the validity of results



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 1	SP A - 2	SP A - 3	SP A - 4	SP A - 5
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751473	751474	751475	751476	751477

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.39	0.75	0.58	1.12	1.70
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	0.20	0.35
Fluoranthene	mg/kg	< 0.1	MCERTS	1.14	2.06	1.98	3.59	6.45
Pyrene	mg/kg	< 0.1	MCERTS	1.02	1.76	1.85	3.21	5.90
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.56	0.93	1.21	1.97	3.73
Chrysene	mg/kg	< 0.1	MCERTS	0.62	1.01	1.25	1.86	3.45
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.75	1.16	1.73	2.44	4.85
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.28	0.44	0.66	0.98	1.51
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.62	0.95	1.45	2	3.99
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.38	0.60	0.95	1.28	2.43
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	0.21	0.29	0.55
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.33	0.59	0.89	1.25	2.30
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	6.1	10.4	12.9	20.2	37.2

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 6	SP A - 7	SP A - 8	SP A - 9	SP A - 10
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751478	751479	751480	751481	751482

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.81	1.10	0.30	0.22	0.39
Anthracene	mg/kg	< 0.1	MCERTS	0.20	0.18	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	2.81	3.02	0.87	0.75	0.96
Pyrene	mg/kg	< 0.1	MCERTS	2.62	2.58	0.76	0.65	0.78
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.61	1.40	0.43	0.33	0.41
Chrysene	mg/kg	< 0.1	MCERTS	1.75	1.41	0.48	0.38	0.46
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	2.24	1.68	0.51	0.43	0.46
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.87	0.40	0.21	0.16	0.16
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.91	1.30	0.45	0.33	0.38
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	1.26	0.74	0.27	0.22	0.22
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.26	0.18	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	1.12	0.68	0.26	0.21	0.21
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	17.5	14.7	4.5	3.7	4.4

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Lenham Heath
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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24		
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP E - 1	SP E - 2	SP E - 3		
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris		
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/11/2024	DETS Sample No	751483	751484	751485		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	0.19		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	0.15	0.31	0.84		
Pyrene	mg/kg	< 0.1	MCERTS	0.15	0.31	0.83		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.20	0.64		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	0.59		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.22	0.77		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.36		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.21	0.74		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	0.47		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.42		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	1.7	5.9		

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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 1	SP A - 2	SP A - 3	SP A - 4	SP A - 5
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751473	751474	751475	751476	751477

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	5	7	13	18
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	11	16	32
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	29	50
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	50

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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 6	SP A - 7	SP A - 8	SP A - 9	SP A - 10
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751478	751479	751480	751481	751482

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	10	11	< 3	< 3	< 3
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	15	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	mg/kg	< 21	NONE	25	< 21	< 21	< 21	< 21
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	< 42

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Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24		
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP E - 1	SP E - 2	SP E - 3		
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris		
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/11/2024	DETS Sample No	751483	751484	751485		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21		
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21		
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42		

~Sample details provided by customer and can affect the validity of results



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 1	SP A - 2	SP A - 3	SP A - 4	SP A - 5
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751473	751474	751475	751476	751477

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

~Sample details provided by customer and can affect the validity of results



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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24	19/11/24	19/11/24
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP A - 6	SP A - 7	SP A - 8	SP A - 9	SP A - 10
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris	Ris	Ris
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 25/11/2024	DETS Sample No	751478	751479	751480	751481	751482

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

~Sample details provided by customer and can affect the validity of results



Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-13988	~Date Sampled	19/11/24	19/11/24	19/11/24		
RSK	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Risborough Barracks, Shorncliffe Garrison	~TP / BH No	SP E - 1	SP E - 2	SP E - 3		
~Project / Job Ref: 52022	~Additional Refs	Ris	Ris	Ris		
~Order No: None Supplied	~Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 25/11/2024	DETS Sample No	751483	751484	751485		

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-13988	
RSK	
~Site Reference: Risborough Barracks, Shorncliffe Garrison	
~Project / Job Ref: 52022	
~Order No: None Supplied	
Reporting Date: 25/11/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
751473	SP A - 1	Ris	None Supplied	17.8	Brown sandy clay with stones
751474	SP A - 2	Ris	None Supplied	13.1	Brown sandy clay
751475	SP A - 3	Ris	None Supplied	17.7	Brown sandy clay with stones
751476	SP A - 4	Ris	None Supplied	18.1	Brown sandy clay with stones
751477	SP A - 5	Ris	None Supplied	15.3	Brown sandy clay
751478	SP A - 6	Ris	None Supplied	16.1	Brown sandy clay with stones
751479	SP A - 7	Ris	None Supplied	17.2	Brown sandy clay
751480	SP A - 8	Ris	None Supplied	18	Brown sandy clay with stones
751481	SP A - 9	Ris	None Supplied	18.5	Brown sandy clay
751482	SP A - 10	Ris	None Supplied	17.6	Brown sandy clay with stones
751483	SP E - 1	Ris	None Supplied	13.5	Brown sandy clay
751484	SP E - 2	Ris	None Supplied	13.1	Brown sandy clay
751485	SP E - 3	Ris	None Supplied	11.2	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{4/5}

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-13988

RSK

~Site Reference: Risborough Barracks, Shorncliffe Garrison

~Project / Job Ref: 52022

~Order No: None Supplied

Reporting Date: 25/11/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~Sample details provided by customer and can affect the validity of results

APPENDIX D

VALIDATION ACCEPTANCE CRITERIA (VAC)

Table 3: Human health validation assessment criteria

Compound	VAC (mg/kg)	VAC (mg/kg)
Carcinogenic/Mutagenic materials	Private gardens	Communal landscaping
Asbestos (detection limit of <0.001% weight for weight)	No asbestos detected	No asbestos detected
Metals		
Arsenic	37	79
Cadmium	22	220
Chromium (III) - oxide	910	1,540
Chromium (VI)	21	21
Copper	2,500	12,000
Lead	200	630
Inorganic Mercury (Hg ²⁺)	39	120
Nickel	130	230
Selenium	258	1,100
Zinc	3,900	81,000
BTEX Compounds		
Benzene	0.87	140
Toluene	680	55,900
Ethylbenzene	260	24,600
Xylene - m	327	43,100
Xylene - o	332	43,200
Xylene - p	310	43,100
Total xylene	310	43,100
Semi-volatile organic compounds		
Acenaphthene	1,170	14,800
Acenaphthylene	970	14,800
Anthracene	10,900	74,100
Benzo(a)anthracene	13	29
Benzo(b)fluoranthene	3.7	7
Benzo(g,h,i)perylene	350	640
Benzo(k)fluoranthene	100	191
Chrysene	27	57
Dibenzo(a,h)anthracene	0.30	0.58
Fluoranthene	900	3,100

Compound	VAC (mg/kg)	VAC (mg/kg)
Fluorene	880	9,900
Indeno(1,2,3-cd)pyrene	71	82
Phenanthrene	440	3,100
Pyrene	2,040	7,400
Benzo(a)pyrene	5	7
Naphthalene	71	4,900
Total Petroleum Hydrocarbons		
Aliphatic hydrocarbons EC5–EC6	160	600,000
Aliphatic hydrocarbons >EC6–EC8	530	620,000
Aliphatic hydrocarbons >EC8–EC10	154	13,000
Aliphatic hydrocarbons >EC10–EC12	760 (283)	13,000
Aliphatic hydrocarbons >EC12–EC16	4,300 (142)	13,000
Aliphatic hydrocarbons >EC16–EC35	110,000	250,000
Aromatic hydrocarbons >EC8–EC10	110,000	5,000
Aromatic hydrocarbons >EC10–EC12	390	5,000
Aromatic hydrocarbons >EC12–EC16	670	5,000
Aromatic hydrocarbons >EC16–EC21	930	3,800
Aromatic hydrocarbons >EC21–EC35	1,700	3,800

Table 4: Phytotoxicity validation criteria

Determinant	Generic assessment criteria (mg/kg)			
	pH 5.0 < 5.5	pH 5.5 < 6.0	pH 6.0 < 7.0	pH >7.0
Zinc	200	200	200	300
Copper	80	100	135	200
Nickel	50	60	75	110
Lead	300	300	300	300
Cadmium	3	3	3	3
Mercury	1	1	1	1
Note: Only compounds within BS3882:2015 and BS8601:2013 for topsoil and subsoil specification have been included.				

Table 5: Validation criteria for water supply pipes

		Pipe material	
		GAC (mg/kg)	
	Parameter group	PE	PVC
1	Extended VOC suite by purge and trap or head space and GC-MS with TIC (Not including compounds within group 1a)	0.5	0.125
1a	BTEX + MTBE	0.1	0.03
2	SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C ₅ –C ₁₀) (Not including compounds within group 2e and 2f)	2	1.4
2e	Phenols	2	0.4
2f	Cresols and chlorinated phenols	2	0.04
3	Mineral oil C ₁₁ –C ₂₀	10	Suitable
4	Mineral oil C ₂₁ –C ₄₀	500	Suitable
5	Corrosive (conductivity, redox and pH)	Suitable	Suitable
Specific suite identified as relevant following site investigation			
2a	Ethers	0.5	1
2b	Nitrobenzene	0.5	0.4
2c	Ketones	0.5	0.02
2d	Aldehydes	0.5	0.02
6	Amines	Not suitable	Suitable
Notes: where indicated as 'suitable', the material is considered resistant to permeation or degradation and no threshold concentration has been specified by UKWIR.			