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## Supplementary Ground Investigation Report

Residential Development

Goldings, TN12 6EQ

February 2024



## Project Details

Site: Goldings, TN12 6EQ  
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## Document history and status

Revision	Date	Description	Author	Reviewer
A	February 2024	First Issue	OH	MOH



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# 1 Introduction

## 1.1 Scheme Outline

1.1.1 This proposed development is for the demolition of former domestic garages and the subsequent construction of four residential houses and parking areas. The site is known as 'Goldings', and is located adjacent to Ringden Avenue and Goldings road, in Tunbridge Wells. The post code for the site is TN12 6EQ.

1.1.2 The development is controlled under Tunbridge Wells Borough Council's planning regime under applications 19/00390/FUL, and 21/00579/SUB.

1.1.3 An aerial image showing the approximate site boundary is presented below, and a series of site plans is provided within Appendix A. The development is nearing completion.



Figure 1-A: Aerial photograph and approximate site boundary

## 1.2 Brief

1.2.1 This report has been prepared following instructions received from our Client, Guildmore. The overall brief of works is to:

- i) Undertake a supplementary ground investigation to address data-gaps identified by the regulator.
- ii) Support the planning application by assessing the potential risks from contamination at the site.

1.2.2 The objectives of this report are outlined below:

- i) Summarise previous intrusive investigation works undertaken
- ii) Summarise the latest phase of works undertaken and associated laboratory testing.

- iii) Undertake a land contamination Tier 2 generic quantitative risk assessment.
- iv) Provide recommendations to inform an Options Appraisal and Remediation Strategy, should they be required.

### 1.3 Definition of Scope

1.3.1 The phasing and scope of the ground investigation works is broadly defined by the following documents.

Title	Document Reference	Publisher	Investigation Scope
Code of practice for ground investigations	BS 5930: 2015	British Standards Institution	Phase 2: Preliminary investigation
Investigation of potentially contaminated sites – Code of practice	BS 10175: 2011+A2:2017	British Standards Institution	Supplementary Investigation
Land contamination risk management	Online resource, updated April 2021	Environment Agency	Stage 1 Risk Assessment: Tier 2: Generic quantitative risk assessment

Table 1-A: Definition of Investigation Scope

### 1.4 Limitations

1.4.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

## 2 Previous Investigations

### 2.1 Previous Reports

2.1.1 Soiltechnics are aware that a previous ground investigation was undertaken at the site within 2020 to provide preliminary information on the ground conditions and to undertake a contaminated land risk assessment.

2.1.2 The report has been provided to us through consultation with the client and is summarised in Table 2-A below.

Author	Document Title	Date & Document Reference	Report Context
Peter Baxter Associates	Phase 1 and 2 Geoenvironmental Report	January 2022 1363/6/SI 5.0	<p>A report documenting a combined geotechnical and environmental investigation conducted at the Goldings site. The investigation was completed in association with the same development proposals under current consideration.</p> <p>The environmental aspect of the report contains a site walkover, phase 1, and phase 2 contamination report, further information of which is provided in the following paragraph.</p> <p>It is understood this report is an update of a previously issued report to partially address comments provided by the regulator and incorporate a second phase of works.</p>

Table 2-A: Summary of previous reports

2.1.3 The 'Phase 1 and 2 Geoenvironmental Report' identified the sites previous use as a car park and lock up garages, and highlighted these as potential sources of contamination. The Preliminary Risk Assessment concluded that the environmental risks from on-site sources were low, and no further investigations of the site soils was necessary.

2.1.4 Despite this, an exploratory phase of works was carried out to provide further confidence. Two exploratory holes were completed at the site, and a sample from each was taken and submitted for laboratory analysis. The depth of the samples was noted as '0'. Analysis included a range of possible contaminants associated with the sites previous use, including:

- Asbestos trace
- "CLEA" suite of heavy metals
- Selected volatile organic compounds (TPH-CWG)
- Polyaromatic hydrocarbons (PAH)
- Organic matter

2.1.5 The levels of contamination measured in the recovered soil samples were either not detected or were lower than the selected Acceptance Criteria for residential gardens with vegetable uptake. The report concluded that no remediation works were considered necessary.

## **2.2 Local Authority Correspondence**

2.2.1 The report written by Peter Baxter Associates was reviewed by the council, who ultimately recommended that the planning condition should not be discharged. Soiltechnics have been provided comments from the Local Authority dating to 13.04.21, 30.09.21 and 29.09.22.

2.2.2 Some of the key points provided by the Environmental Protection Team Leader are summarised below, and a full copy is provided within Appendix B.

- i) The sampling size for the site is too small. I do not believe that the site has been investigated sufficiently. Reference has been made to BS10175 regarding the minimal number of samples required for a site this size but there are still pathways that have not been investigated.
- ii) Further samples will be required focussing on the garden areas of the new properties in order to eliminate this from the conceptual site model.
- iii) There is no rationale behind the sampling depth and location, and most samples appear to be taken at a depth of '0'.



## 3 Ground Investigation

### 3.1 Objectives

3.1.1 The ground investigation scope and location of exploratory holes was determined by Soiltechnics, based upon our overall brief outlined in Section 1.

3.1.2 The objectives of the fieldwork were to:

- i) Undertake supplementary ground investigation works to provide a more robust conceptual site model.
- ii) Undertake ground investigation works to obtain samples for subsequent laboratory testing and facilitate the characterisation of the ground conditions at the site.

### 3.2 Fieldwork summary

3.2.1 Fieldwork was undertaken on 11<sup>th</sup> January 2024.

3.2.2 A summary of the works completed is set out in the table below. The exploratory hole location plan is presented within Appendix A, and the logs are presented in Appendix C. A series of site photographs taken during the visit are presented in Appendix F.

3.2.3 The exploratory hole plan includes the 1<sup>st</sup> phase of ground investigation works undertaken by Peter Baxter Associates; however, we have not been provided a copy of a hole plan for their second phase of works.

Method	ID	Final Depth (m bgl)	Comments
Hand Pits	S1-TP01	1.00	Targeted rear garden areas.
	S1-TP02	0.60	Targeted POS, adjacent to former garage areas.
	S1-TP03	0.60	Targeted front garden areas.

Table 3-A: Summary of fieldwork undertaken

3.2.4 All soils encountered were described in accordance with BS EN ISO 14688 “Identification and Classification of soil”.

### 3.3 Sampling

3.3.1 During the fieldwork, sampling of soil, rock and groundwater for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 “Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements”.

3.3.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 “Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples”.

3.3.3 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of.

### 3.4 Investigation Constraints

3.4.1 No significant constraints were encountered which limited the design of the scope of works or the undertaking of fieldworks.

## 4 Ground Investigation Findings

### 4.1 Topsoil

- 4.1.1 Topsoil was encountered in all exploratory holes across the site. The base of the unit was typically 0.2m bgl with the exception of S1-TP03 where it was 0.15m.
- 4.1.2 Topsoil within the rear garden of the northernmost property (S1-TP01) was encountered as a brown slightly gravelly fine to medium organic sand.
- 4.1.3 The topsoil to the front of the southernmost property and the topsoil within the soft landscaping area within the northwest of the site (S1-TP03 and S1-TP02 respectively) was encountered as a brown slightly gravelly slightly clayey fine to coarse sand and occurred as a slightly sandy slightly gravelly clay in S1-TP03.
- 4.1.4 The topsoil within the POS location had a small portion of anthropogenic materials were present such as brick, concrete, plastic, and wood.
- 4.1.5 Photographs of the topsoil deposits encountered is presented below.



Figure 4-A: Photograph of the Topsoil deposits encountered from S1-TP01



Figure 4-B: Photograph of the Topsoil - Made Ground deposits encountered in S1-TP02



Figure 4-C: Photograph of the Topsoil - Made Ground deposits encountered in S1-TP03

## 4.2 Made Ground

- 4.2.1 Made Ground was encountered across all exploratory holes. The Made ground was 0.45m thick in S1-TP01, and the base of the Made Ground was not penetrated in trial pits S1-TP02 and S1-TP03. In all cases the Made Ground resembled a reworked natural subsoil, with occasional inclusions of anthropogenic materials. It generally consisted of soft greyish brown slightly sandy slightly gravelly clay.
- 4.2.2 Within the POS are in S1-TP02 the Made Ground comprised of a clayey sand with occasional cobbles of concrete.
- 4.2.3 A photograph of the Made from S1-TP02 is presented below.



Figure 4-D: A photograph of the typical Made Ground encountered on site

### 4.3 River Terrace Deposits

4.3.1 River Terrace Deposits were only encountered in trial pit S1-TP01 (0.65-1.0m) and occurred as a soft orangish brown mottled brown slightly sandy slightly gravelly clay. The gravels consisted of fine to coarse sandstone.

4.3.2 A photograph of the River Terrace Deposits is presented below.



*Figure 4-E: A photograph of the River Terrace Deposits encountered in trial pit S1-TP01*

### 4.4 Groundwater

4.4.1 Groundwater was observed in trial pit S1-TP01 during the fieldwork, at 1.0m depth, filling the hole to 0.95m after 20 minutes.

### 4.5 Evidence of Possible Contamination

4.5.1 During the ground investigation works, no significant visual or olfactory evidence of contamination was noted, except for the presence of anthropogenic materials contained within the Made Ground (ash, brick, concrete, clinker-like material).

## 5 Tier 2 Generic Quantitative Risk Assessment

### 5.1 Objectives

5.1.1 The objective of this generic quantitative risk assessment (GQRA) is to further assess the potential contaminant linkages (PCLs) identified within the previous ground investigation reports and to address data-gaps in their assessment, the following:

- The findings of the intrusive site investigation and resulting site specific ground and model.
- Laboratory analysis of soils.

### 5.2 Fieldwork Observations

5.2.1 Fieldwork observations on the potential for contamination and the underlying ground conditions did not identify any new contaminant sources or significant pathway alterations to the anticipated ground model. Therefore no specific amendments to the CSM are required at this stage.

### 5.3 Laboratory Testing Rationale

5.3.1 Samples obtained from exploratory holes were sent to an independent accredited laboratory for chemical testing.

5.3.2 The chemical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the conceptual site model and fieldwork observations. This is further elaborated on in the table below. The chemical laboratory test results are presented in Appendix D.

Sample Type	Testing	Qty	Areas Targeted
Soils	<i>Basic Classification Suite</i> [metals, cyanides, PAHs, phenol, banded TPH & asbestos]	3	(S1-TP01 and S1-TP03) Garden topsoils, subsoils and shallow Made Ground

Table 5-A: Summary of chemical laboratory testing

### 5.4 Generic Assessment Criteria

5.4.1 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a ‘trigger’ to an assessor that soil concentrations above these limits might present an unacceptable risk.

5.4.2 Various GAC sources are used within this report. Key assumptions are made in the derivation of screening values in regard to their use and application, and exposure modelling is based on precautionary national scenarios. This generic approach can result in an overly conservative assessment; therefore, the assessor is required to review the outcome of the GQRA screening in the context of the site specific CSM and identified potential contaminant linkages.

5.4.3 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.

5.4.4 Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix E, along with the order of preference where multiple GAC sources are available. The exposure models adopted are discussed in the relevant sections below.

## 5.5 Human Health GQRA (soils and vapour)

5.5.1 The results of the human health screening assessment for soils and vapours are detailed in Appendix E. The following table outlines the exposure models adopted, along with summarising the outcome of each screening assessment.

Receptor	Exposure Model	Outcome
All human health receptors	Presence of asbestos	No suspected ACMs observed during fieldworks. No fibres detected through laboratory analysis.
Proposed users	Residential with plant uptake	No exceedances

Table 5-B: Human health GQRA models and outcomes

5.5.2 All reported concentrations of contaminants are below the relevant generic assessment criteria for human health receptors. In addition, the fieldwork observations did not detect areas of suspected contamination which require further assessment.

5.5.3 The coverage of the supplementary works targeted areas of the where data-gaps existed in the previous ground investigation report. In particular, the soils in the garden and POS areas were investigated, which would be the primary route of exposure for contaminants in the shallow subsurface.

5.5.4 Overall, the combined coverage of the site from all phases of investigation works is considered to have adequately characterised the site, and the risk assessment can conclude a minimal is posed to future residents and the environment from the development of the site.

## 5.6 Updated Conceptual Site Model (uCSM)

5.6.1 Following on from the previous ground investigation report, and discussions above, an updated conceptual site model has been tabulated overleaf.

5.6.2 The table below presents our approach to the assessment of risks associated with potential contaminant linkages. The categories are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur.

		Consequence of harm			
		Severe	Medium	Mild	Minor
Probability of harm	High likelihood	<b>Risk: Very high</b> (high – severe)	<b>Risk: High</b> (high – medium)	<b>Risk: Moderate</b> (high – mild)	<b>Risk: Moderate/Low</b> (high – minor)
	Likely	<b>Risk: High</b> (likely – severe)	<b>Risk: Moderate</b> (likely – medium)	<b>Risk: Moderate/Low</b> (likely – mild)	<b>Risk: Low</b> (likely – minor)
	Low Likelihood	<b>Risk: Moderate</b> (low – severe)	<b>Risk: Moderate/Low</b> (low – medium)	<b>Risk: Low</b> (low – mild)	<b>Risk: Very low</b> (low – minor)
	Unlikely	<b>Risk: Moderate/Low</b> (unlikely – severe)	<b>Risk: Low</b> (unlikely – medium)	<b>Risk: Very low</b> (unlikely – mild)	<b>Risk: Very low</b> (unlikely – minor)
	Negligible Likelihood	<b>Risk: Low</b> (negligible– severe)	<b>Risk: Very Low</b> (negligible– medium)	<b>Risk: Very Low</b> (negligible– mild)	<b>Risk: Negligible</b> (negligible– minor)

Table 5-C: CSM Risk Ratings

RECEPTOR: PROPOSED END USERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
Made Ground of unknown origin	Metals, PAHs, TPH, phenol, asbestos	Ingestion, inhalation and contact with soils, dusts and vapours.	<b>Risk: Low</b> (unlikely – medium)	Intrusive works did not encounter any visual or olfactory evidence of contamination. No ACMs were observed during the fieldworks. Anthropogenic materials were present, such as brick and concrete fragments; however, these typically of a low frequency and often inert materials. Chemical testing confirms contamination levels are below GAC thresholds.
Car parking (previous site use)	PAHs, TPH	Ingestion, inhalation and contact with soils, dusts and vapours	<b>Risk: Low</b> (unlikely – medium)	Minor leaks from parked vehicles are unlikely to present a viable risk. No evidence of hydrocarbon contamination observed in the field, or detected through laboratory testing.
Domestic garages (previous site use)	PAH, TPH, VOCs	Ingestion, inhalation and contact with soils, dusts and vapours	<b>Risk: Low</b> (unlikely – medium)	The garages are likely to have stored low volumes of fuels and solvents. Leaks, spills and poor disposal practices may have given rise to ground contamination. No evidence of hydrocarbon contamination observed in the field, or detected through laboratory testing.
On-site shallow Made Ground deposits with low organic content	Permanent Ground Gases (CH <sub>4</sub> & CO <sub>2</sub> )	Migration through the sub-surface into enclosed spaces	<b>Risk: Low</b> (negligible– severe)	Sustained high-volume generation is not feasible with thin fill deposits with low organic content. Ground gases would not migrate at sufficient volumes or concentrations to pose a viable risk.
Off-site: Landfills and infilled ground	Permanent Ground Gases (CH <sub>4</sub> , CO <sub>2</sub> & H <sub>2</sub> S)	Lateral migration through the sub-surface into enclosed spaces	<b>Risk: Low</b> (negligible– severe)	No recorded landfills or significant areas of infilled ground are present in the surrounding area. No recorded landfills are present within 1,000m.
Geological Units	Radon	Migration through the sub-surface	<b>Risk: Low</b> (unlikely – medium)	Lower probability area. No radon protection measures are required for new above-ground buildings, conversions and refurbishments.

Table 5-D: uCSM – Proposed End Users

RECEPTOR: CONSTRUCTION WORKERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All other contamination sources, excluding asbestos	Metals, PAHs, TPHs	Ingestion, inhalation and contact with soils, dusts and vapours	<b>Risk: Low</b> (low – mild)	No AMCs or gross contamination of high-risk contaminants detected (e.g. cyanide, benzene, and vinyl chloride). Standard PPE and hygiene protocols for working on brownfield sites are likely to be sufficient to mitigate risk.

Table 5-E: uCSM – Acute Exposure to Construction Workers



RECEPTOR: ADJACENT SITE USERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
All identified potential contaminant sources	Metals, PAHs, TPH, (S)VOCs, Asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	<b>Risk: Low</b> (unlikely – medium)	Based on the exposure pathways that would be present from the developed site, and on the very low levels of contamination detected, it is considered unlikely that a pollutant linkage could pose an unacceptable risk to off-site receptors.

Table 5-F: uCSM – Exposure to Adjacent Site Users

RECEPTOR: CONTROLLED WATERS				
Potential Source	Contaminants of Concern	Pathway	Tier 1 Risk Assessment (probability of harm x consequence)	Discussion
<i>All potential contaminant sources outlined above</i>	<i>Various</i>	<i>Leaching and lateral migration (Surface water)</i>	<b>Risk: Low</b> (unlikely – medium)	<i>Nearest water course approximately 60m west of the site. Underlying soils re a Secondary Aquifer. Potential for leachable contaminants within the Made Ground and NAPL to migrate laterally along preferential pathways. Vertical migration into more sensitive aquifers at depth is unlikely given the low permeability of the deposits.</i>
<i>All potential contaminant sources identified</i>	<i>Various</i>	<i>Leaching and vertical migration (Groundwater)</i>	<b>Risk: Low</b> (unlikely – medium)	<i>Site observations and laboratory analysis have not detected any evidence of significant contamination within the Made Ground on site, and there is no visual or olfactory evidence of hydrocarbons contamination.</i>

Table 5-G: uCSM – Controlled Waters Risk

## **6 Conclusions and Recommendations**

### **6.1 Conclusions**

- 6.1.1 The supplementary phase of works has addressed data-gaps in the former assessment, and no relevant pollutant linkages have been identified.
- 6.1.2 Overall, the site is considered safe for development, with minimal risk posed to the end users and controlled waters.

### **6.2 Further Works**

- 6.2.1 Further investigative works are not considered necessary, and there is no remedial requirement for the site.

### **6.3 Unexpected and Previously Unencountered Contamination**

- 6.3.1 With the development of any site, there is a residual risk of contamination being found that is unexpected or has not been encountered during investigation or other siteworks.
- 6.3.2 Should any previously unencountered and unexpected contamination be encountered, works should be temporarily halted and Soiltechnics informed. The Consultant should then assess the situation to determine what remedial action is required and inform the Local Authority at the earliest opportunity.

## **Appendix A Drawings**



LL C1 18.10.23 Construction Issue

Rev By.	Rev.	Date.	Description.
---------	------	-------	--------------



Unit 2A, Capital House,  
4 Jubilee Way,  
Faversham, Kent,  
ME13 8GD  
01233 812 148



Project Title.  
**Proposed development at,  
Kent Garage Sites  
Bungalow  
Goldings, Paddock Wood**

Drawing Description.  
**Location Plan**

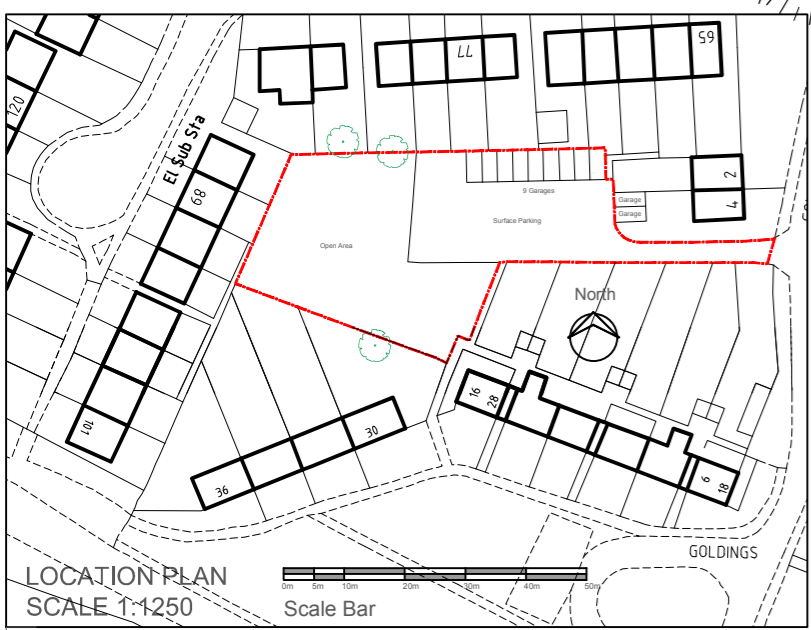
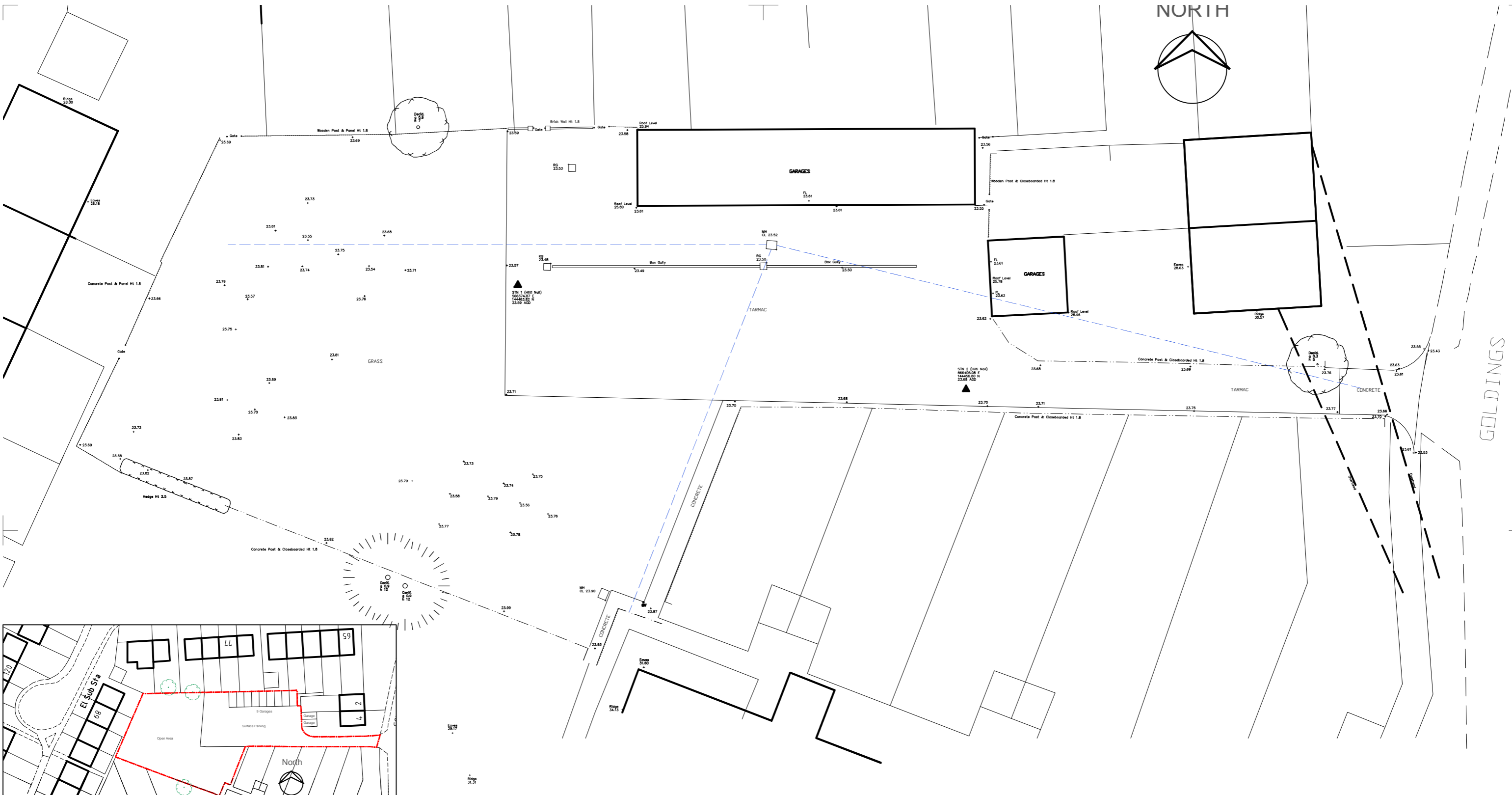
Scale @ A3. <b>1:1250</b>	Date. <b>September 23</b>
------------------------------	------------------------------

Drawn By. <b>OSG</b>	Checked By. <b>BH</b>
-------------------------	--------------------------

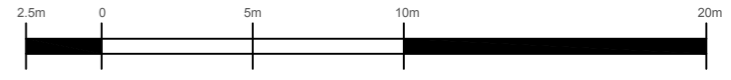
Purpose.  
**CONSTRUCTION**

Drawing No. <b>23/1417/4 - 92</b>	Rev. <b>C1</b>
--------------------------------------	-------------------

- Notes.
- Drawing may be scaled for planning and land registry only, not for construction purposes.
  - The contractor is responsible for checking dimensions, tolerances and references. Report all discrepancies to OSG Architecture Limited before proceeding with the works.
  - Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.



EXISTING SITE PLAN  
SCALE 1:250



**NOTES:**

Report all discrepancies, errors and omissions  
Do not scale from this drawing.  
Verify all dimensions on site before commencing any work or preparing shop drawings.  
All materials, components and workmanship are to comply with all the relevant British Standards, Codes of Practice, and appropriate manufacturers recommendations that from time to time shall apply.  
For all specialist work, see relevant drawings.

**PLANNING**

This drawing and design are copyright of PELLINGS LLP

Rev	Date	Description	Name
-	--/--		



CLIENT: Monson Homes Ltd. TITLE: Existing Site Plan Location Plan Ringden Avenue Site 4		PROJECT: Garage Infill Programme 2015 DATE: OCT 2018 SCALE: 1:250, 1250@A3 DRAWN: NP CHK:	
Pellings LLP 24 Widmore Road Bromley Kent BR1 1RY t 020 8460 9114 f 020 8313 0019 e bromley@pellings.co.uk www.pellings.co.uk		Architecture & Planning ■ Building Surveying ■ Project Management ■ Cost Consultancy ■ CDM Co-ordination	
		<b>692 034 PL01</b>	

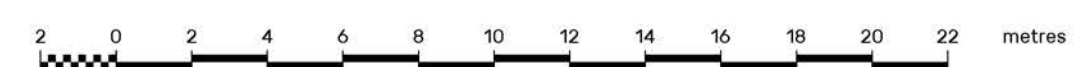
For all movement joints and structural column & beam locations, refer to Structural Engineers details/specifications.

Key:



Station Point.		
STN 10 :	E	566442.229
	N	144456.999
STN 11 :	E	566435.142
	N	144434.981
STN 12 :	E	566438.845
	N	144481.730
STN 13 :	E	566406.179
	N	144456.321
STN 14 :	E	566374.067
	N	144456.511
Setting Out Point		
SP1:	E	566353.307
	N	144465.185
SP2:	E	566361.172
	N	144463.048
SP3:	E	566376.545
	N	144456.980
SP4:	E	566383.749
	N	144453.169
SP5:	E	566380.117
	N	144443.970
SP6:	E	566372.278
	N	144447.064
SP7:	E	566357.515
	N	144452.892
SP8:	E	566349.676
	N	144455.986



**TOTALS**  
 Site Area 0.15 Ha  
 4 x 2 Bed 4 Person Bungalows  
 12 Habitable Rooms  
 27 Units/Ha  
 80 Habitable Rooms/Ha  
 17 Parking Spaces (6 allocated)  
 4 Cycle Spaces



C1 18.10.23 Construction Issue

Rev.	Date	Description
 <b>GUILDMORE</b> The Wyseplan Building Occupation Rd, Wye, Ashford, Kent, TN25 5BX 01233 812 148		
 <b>OSG ARCHITECTURE</b>		
Project Title: <b>Proposed Development at                  Kent Garage Sites,                  Bungalows                  Goldings, Paddock Wood</b>		
Drawing Description: <b>Proposed Site Plan</b>		
Scale @ A1:	Date: <b>September 2023</b>	
1:200		
Drawn By: <b>OSG</b>	Checked By: <b>BH</b>	
Purpose: <b>CONSTRUCTION</b>		
Drawing No: <b>23/1417/4 - 90</b>	Rev: <b>C1</b>	
Notes: - Do not scale. - The contractor is responsible for checking dimensions, tolerances and references. Report all discrepancies to OSG Architecture Limited before proceeding with the works. - Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.		
COPYRIGHT: OSG Architecture Limited own the copyright to this drawing. Their written consent must be obtained before this drawing is copied or used for any purpose other than the one for which it was supplied.		

## **Appendix B    Local Authority Correspondence**

# Consultee Comments for Planning Application 21/00579/SUB

## Application Summary

Application Number: 21/00579/SUB

Address: Garages Rear Of 4 Goldings Paddock Wood Tonbridge Kent

Proposal: Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination); Condition 9 (Landscaping) of 16/503393/FULL

Case Officer: Kirsty Minney

## Consultee Details

Name: . Environmental Protection

Address: Tunbridge Wells Borough Council, Town Hall, Mount Pleasant Road Royal Tunbridge Wells, Kent TN1 1RS

Email: EnvironmentalHealthAdmin\_TWBC@MidKent.gov.uk

On Behalf Of: Environmental Protection

## Comments

MIDKENT ENVIRONMENTAL HEALTH SHARED SERVICE  
MEMORANDUM

From: Duncan Wallman

Environment and Street Scene To: Kirsty Minney  
Planning Department

Date: 13th April 2021

Our Ref: 21/503852/GENPLA

Planning Details and Application Ref:  
PLANNING REF 21/00579/SUB

UPRN 010024138335

## ADDRESS

Garages Rear Of  
4 Goldings  
Paddock Wood  
Tonbridge  
Kent

## NATURE

Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination);



Condition 9 (Landscaping) of 16/503393/FULL  
REASON

MAIN POINTS CONSIDERED:

Contaminated land

SITE VISITED:

No

COMMENTS

I have reviewed the joint phase 1 and 2 report completed by Peter Baxter Associates and made the following observations.

The sampling size for the site is too small, I do not believe that the site has been investigated sufficiently. Reference has been made to BS10175 regarding the minimal number of samples required for a site this size but there are still pathways that have not been investigated.

Further samples will be required focussing on the garden areas of the new properties in order to eliminate this from the conceptual site model. Different depths of samples will also be required instead of just 0.0m depths.

I would also recommend supplying the borehole location plans with clear marks instead of letters.

RECOMMENDATIONS:

Further investigation will be required. I recommend Condition 4 part A is discharged part B will require further information.

INFORMATIVES

As the development involves demolition and / or construction, I would recommend that the applicant is supplied with the Mid Kent Environmental Code of Development Practice. Broad compliance with this document is expected.

Please do not hesitate to contact me for further advice or information in relation to this matter.

Duncan Wallman  
Scientific Officer

# Consultee Comments for Planning Application 21/00579/SUB

## Application Summary

Application Number: 21/00579/SUB

Address: Garages Rear Of 4 Goldings Paddock Wood Tonbridge Kent

Proposal: Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination); Condition 8 (Landscaping) of 19/00390/FULL

Case Officer: Kirsty Minney

## Consultee Details

Name: . Environmental Protection

Address: Tunbridge Wells Borough Council, Town Hall, Mount Pleasant Road Royal Tunbridge Wells, Kent TN1 1RS

Email: Not Available

On Behalf Of: Environmental Protection

## Comments

MIDKENT ENVIRONMENTAL HEALTH SHARED SERVICE  
MEMORANDUM

From: Duncan Haynes

Environment and Street Scene To: Kirsty Minney  
Planning Department

Date: 30th September 2021

Our Ref: 21/518676/GENPLA

Planning Details and Application Ref:  
PLANNING REF 21/00579/SUB

UPRN 010024138335

## ADDRESS

Garages Rear Of  
4 Goldings  
Paddock Wood  
Tonbridge  
Kent

## NATURE

Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination);

Condition 8 (Landscaping) of 19/00390/FULL  
REASON

MAIN POINTS CONSIDERED:

Additional information provided

SITE VISITED:

No

COMMENTS

I have reviewed the additional information provided and have the following comments.

I can see no benefit of taking samples at 0.0M this is not representative of soils to be used by end users particularly on a development site.

Do the 4 additional samples represent garden areas?

There is no consideration of drainage runs or activities inside the garages.

Risk assessment only be using UK values not Dutch although note these may be lower.

There is no rationale behind sampling location, depth, number etc.

RECOMMENDATIONS:

The condition should not be discharged.

Please do not hesitate to contact me for further advice or information in relation to this matter.

Duncan Haynes  
Environmental Protection Team Leader

# Consultee Comments for Planning Application 21/00579/SUB

## Application Summary

Application Number: 21/00579/SUB

Address: Garages Rear Of 4 Goldings Paddock Wood Tonbridge Kent

Proposal: Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination); Condition 8 (Landscaping) of 19/00390/FULL

Case Officer: Kirsty Minney

## Consultee Details

Name: . Environmental Protection

Address: Tunbridge Wells Borough Council, Town Hall, Mount Pleasant Road Royal Tunbridge Wells, Kent TN1 1RS

Email: Not Available

On Behalf Of: Environmental Protection

## Comments

MIDKENT ENVIRONMENTAL HEALTH

MEMORANDUM

From: Duncan Haynes

Environmental Protection Team To: Kirsty Minney

Planning Department

Date: 29th September 2022

Our Ref: 22/517947/GENPLA

Planning Details and Application Ref:

PLANNING REF 21/00579/SUB

UPRN 010024138335

ADDRESS

Garages Rear Of

4 Goldings

Paddock Wood

Tonbridge

Kent

NATURE

Submission of Details in Relation to Condition 3 (Materials); Condition 4 (Contamination);

Condition 8 (Landscaping) of 19/00390/FULL  
REASON

MAIN POINTS CONSIDERED:

Revised report and previous comments

SITE VISITED:

No

COMMENTS

I have examined the revised closely to identify the updated sections, I note that the investigation has not been supplemented only the report.

The report states that additional investigation TPH 1 4 was aimed at garden areas.

The report mentions that there is a plan of the borehole locations but I am not able to locate this in the report.

Window samples 1 and 2 were taken at 0.0m basically scraped off the top? This is not usual practice and was queried in previous comments. In WS1 this would be the actual tarmac. I do not understand why tarmac would be sampled and the results do not seem consistent with this. WS2 was in grass and again seems unrepresentative at this depth.

TP/BH 1-4 are all sampled at 0.2m so we have a picture of soil quality at only that depth.

RECOMMENDATIONS:

The condition should not be discharged.

Please do not hesitate to contact me for further advice or information in relation to this matter.

















Duncan Haynes

Environmental Protection Team Leader

## **Appendix C      Exploratory Hole Logs: Trial Pits**

## Key to legends

### Composite materials, soils and lithology

	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

## Key to 'test results' and 'sampling' columns

### Test result



Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m <sup>2</sup> ) by applying a factor of 50.
Result	SV – Hand held shear vane result reported as an undrained shear strength (kN/m <sup>2</sup> ). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.

### Sampling

From (m) To (m)	Records depth of sampling
	D Disturbed sample
	B Bulk disturbed sample
	ES Environmental sample
	W Water sample
Type	U Undisturbed thick-walled sample 100mm diameter sampler
	UT Undisturbed thin walled sample 100mm diameter sampler
	UTF Failed undisturbed sample


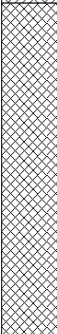
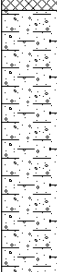

## Water observations

Described at foot of log and shown in the 'water strike' column.

-  Water level observed after specified delay in drilling
-  Water strike


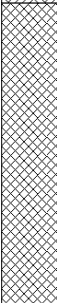
## Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).


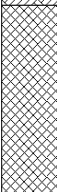
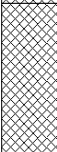
STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto brown slightly gravelly fine to medium organic SAND with many rootlets. Gravel is fine to medium angular to subrounded flint. (TOPSOIL)							0.10		ES
Soft greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded flint, rare charcoal and brick. (MADE GROUND)	0.20						0.40		ES
Soft orangish brown mottled brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subangular sandstone. (RIVER TERRACE DEPOSITS)	0.65						0.80		ES
TRIAL PIT TERMINATED AT 1.00m	1.00								

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.35m x 0.35m	<b>Date(s)</b> 11/01/2024
	<b>Method</b> Hand tools	<b>Logged by</b> OH	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> Groundwater encountered at 1m depth, filling trial pit to 0.95m in 20 minutes.	<b>Level (m OD)</b> -	<b>Compiled by</b> KD	<b>Revision</b> A
	<b>Co-ordinates</b> -	<b>Checked by</b> -	<b>S1-TP01</b>



STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[Loose] brown slightly gravelly slightly clayey fine to coarse SAND with occasional cobbles of concrete. Gravel is fine to coarse angular to rounded flint, concrete and brick. (TOPSOIL - MADE GROUND)	0.20						0.10		ES
[Dense] brown gravelly clayey fine to coarse SAND with abundant cobbles of concrete. Gravel is fine to coarse angular to subrounded flint, brick, concrete and wood. (MADE GROUND)							0.40		ES
TRIAL PIT TERMINATED AT 0.60m	0.60								

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.35m x 0.35m	<b>Date(s)</b> 11/01/2024
	<b>Method</b> Hand tools	<b>Logged by</b> OH	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> -	<b>Compiled by</b> KD	<b>Revision</b> A
	<b>Co-ordinates</b> -	<b>Checked by</b> -	<b>S1-TP02</b>

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto brown slightly sandy slightly gravelly CLAY with many rootlets. Gravel is fine to coarse angular to rounded flint, plastic and brick. (TOPSOIL - MADE GROUND)	0.15  0.40						0.10		ES
Soft greyish brown slightly sandy slightly gravelly CLAY with many rootlets. Gravel is fine to coarse angular to subangular flint and brick. (MADE GROUND)							0.30		ES
Soft light brown slightly sandy slightly gravelly CLAY with rare cobbles of concrete. Gravel is fine to coarse angular to subrounded flint, concrete, brick and ash. (MADE GROUND)							0.50		ES
TRIAL PIT TERMINATED AT 0.60m	0.60								

<b>Notes</b> Trial pit sides remained upright and stable upon completion.	<b>Title</b> Trial pit record	<b>Dimensions (w x l)</b> 0.35m x 0.35m	<b>Date(s)</b> 11/01/2024
	<b>Method</b> Hand tools	<b>Logged by</b> OH	<b>Sheet number</b> Sheet 1 of 1
<b>Groundwater observations</b> No groundwater encountered.	<b>Level (m OD)</b> -	<b>Compiled by</b> KD	<b>Revision</b> A
	<b>Co-ordinates</b> -	<b>Checked by</b> -	<b>S1-TP03</b>

## **Appendix D    Geoenvironmental Laboratory Test Results**



# Amended Report

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**Report No.:** 24-01336-4

**Initial Date of Issue:** 24-Jan-2024      **Date of Re-Issue:** 05-Feb-2024

**Re-Issue Details:** This report has been revised and directly supersedes 24-01336-3 in its entirety

**Client:** Soiltechnics Limited

**Client Address:** 1st Floor Unit 9 Westpoint Enterprise Park  
Clarence Avenue  
Trafford Park  
Manchester  
M17 1QS

**Contact(s):** Admin

**Project:** STW6356 Tunbridge Wells Sites

**Quotation No.:**      **Date Received:** 18-Jan-2024

**Order No.:** POR017555      **Date Instructed:** 18-Jan-2024

**No. of Samples:** 25

**Turnaround (Wkdays):** 5      **Results Due:** 24-Jan-2024

**Date Approved:** 24-Jan-2024

**Approved By:**

**Details:** Nick Watson, Operations Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

---

## Results - Soil

**Project: STW6356 Tunbridge Wells Sites**

Client: Soiltechnics Limited		Chemtest Job No.:		24-01336	24-01336	24-01336		
Quotation No.:		Chemtest Sample ID.:		1754951	1754952	1754953		
Order No.: POR017555		Client Sample Ref.:		2	1	3		
		Client Sample ID.:		S1-TP010.402	S1-TP030.101	S1-TP030.503		
		Sample Location:		S1-TP01	S1-TP03	S1-TP03		
		Sample Type:		SOIL	SOIL	SOIL		
		Top Depth (m):		0.40	0.10	0.50		
		Date Sampled:		11-Jan-2024	11-Jan-2024	11-Jan-2024		
		Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB		
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		U	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	13	15	14
Soil Colour		N	2040		N/A	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones and Roots	Stones and Roots
Soil Texture		N	2040		N/A	Sand	Sand	Sand
pH at 20C		M	2010		4.0	8.2	7.8	7.8
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	0.78	0.84	0.56
Cyanide (Complex)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Arsenic		M	2455	mg/kg	0.5	11	4.5	16
Beryllium		U	2455	mg/kg	0.5	0.7	< 0.5	0.9
Cadmium		M	2455	mg/kg	0.10	0.61	0.15	0.50
Chromium		M	2455	mg/kg	0.5	22	11	22
Copper		M	2455	mg/kg	0.50	22	12	24
Mercury		M	2455	mg/kg	0.05	0.16	0.11	0.18
Nickel		M	2455	mg/kg	0.50	13	5.1	17
Lead		M	2455	mg/kg	0.50	45	36	51
Selenium		M	2455	mg/kg	0.25	0.74	0.27	0.78
Vanadium		U	2455	mg/kg	0.5	31	14	29
Zinc		M	2455	mg/kg	0.50	83	44	120
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
LOI		M	2610	%	0.10	3.2	7.1	3.7
Organic Matter		M	2625	%	0.40	1.4	3.6	8.8
TPH >C5-C6	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C6-C7	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C7-C8	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	8.6
TPH >C21-C35	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	32
Total TPH >C5-C35		N	2670	mg/kg	10	< 10	< 10	41
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10

## Results - Soil

**Project: STW6356 Tunbridge Wells Sites**

<b>Client: Soiltechnics Limited</b>		<b>Chemtest Job No.:</b>		24-01336	24-01336	24-01336		
Quotation No.:		<b>Chemtest Sample ID.:</b>		1754951	1754952	1754953		
Order No.: POR017555		Client Sample Ref.:		2	1	3		
		Client Sample ID.:		S1-TP010.402	S1-TP030.101	S1-TP030.503		
		Sample Location:		S1-TP01	S1-TP03	S1-TP03		
		Sample Type:		SOIL	SOIL	SOIL		
		Top Depth (m):		0.40	0.10	0.50		
		Date Sampled:		11-Jan-2024	11-Jan-2024	11-Jan-2024		
		Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB		
<b>Determinand</b>	<b>HWOL Code</b>	<b>Accred.</b>	<b>SOP</b>	<b>Units</b>	<b>LOD</b>			
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	0.96
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	0.49
Fluoranthene		M	2800	mg/kg	0.10	0.26	0.43	2.9
Pyrene		M	2800	mg/kg	0.10	0.23	0.42	2.6
Benzo[a]anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	1.9
Chrysene		M	2800	mg/kg	0.10	< 0.10	< 0.10	1.8
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	2.2
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	0.87
Benzo[a]pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	1.9
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	< 0.10	< 0.10	1.2
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	< 0.10	< 0.10	1.1
Total Of 16 PAH's		N	2800	mg/kg	2.0	< 2.0	< 2.0	18
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

## Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

## **Report Information**

### **Key**

---

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### **Sample Deviation Codes**

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A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

### **Water Sample Category Key for Accreditation**

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DW - Drinking Water

GW - Ground Water

LE - Land Leachate

NA - Not Applicable

PL - Prepared Leachate

PW - Processed Water



## **Report Information**

RE - Recreational Water

SA - Saline Water

SW - Surface Water

TE - Treated Effluent

TS - Treated Sewage

UL - Unspecified Liquid

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

## **Appendix E    GQRA Screening Assessment**

## QGRA Screening

Assessments	Status	Date	Created by	Reviewed By
<i>Acute human health risk - Soils</i>	<i>Not undertaken</i>			
<b>Chronic human health risk - Soils</b>	<b>Complete</b>	07.02.20224	OH	MOH
<i>Chronic human health risk - Groundwater vapour</i>	<i>Not undertaken</i>			
<i>Controlled waters risk - Surface water</i>	<i>Not undertaken</i>			
<i>Controlled waters risk - Drinking water</i>	<i>Not undertaken</i>			
<i>Controlled waters - Free phase indicator</i>	<i>Not undertaken</i>			
<i>Phytotoxicity</i>	<i>Not undertaken</i>			
<i>Ecotoxicity</i>	<i>Not undertaken</i>			

## Key

Assessment	Abbr.	QGRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010

**Chronic human health risk (soils)**

<b>Scenario</b>	
<b>End user</b>	Current and proposed site user
<b>Receptor</b>	Residential with homegrown produce
<b>SOM</b>	1.00%
<b>GAC Preference</b>	C4SLs over S4ULs
<b>Unspeciated TPH GAC</b>	Worst-case aliphatic/aromatic

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	S1-TP01	S1-TP03	S1-TP03
				Depth (m)	0.40	0.10	0.50
				Date	11/01/24	11/01/24	11/01/24
<b>Inorganics - Metals</b>							
Arsenic	C4SL	37	16		11	4.5	16
Beryllium	S4UL	1.7	0.9		0.7	< 0.5	0.9
Boron	S4UL	290	1.1		0.78	0.84	0.56
Cadmium	C4SL	22	0.61		0.61	0.15	0.5
Chromium (III)	S4UL	910	22		22	11	22
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50	< 0.50
Copper	S4UL	2400	24		22	12	24
Cyanide - Free	ATK	34	<LoD		< 0.50	< 0.50	< 0.50
Lead	C4SL	200	51		45	36	51
Mercury	S4UL	40	0.18		0.16	0.11	0.18
Nickel	S4UL	130	17		13	5.1	17
Selenium	S4UL	250	0.78		0.74	0.27	0.78
Vanadium	S4UL	410	31		31	14	29
Zinc	S4UL	3700	120		83	44	120
<b>Inorganics - Asbestos</b>							
Asbestos Type		N/A			-	-	-
Asbestos Screen		N/A			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
<b>Inorganics - Soil Parameters</b>							
Organic matter		N/A			1.4	3.6	8.8
<b>Organics - PAH &amp; Phenol</b>							
Acenaphthene	S4UL	210	<LoD		< 0.10	< 0.10	< 0.10
Acenaphthylene	S4UL	170	<LoD		< 0.10	< 0.10	< 0.10
Anthracene	S4UL	2400	0.49		< 0.10	< 0.10	0.49
Benzo(a)anthracene	S4UL	7.2	1.9		< 0.10	< 0.10	1.9
Benzo(a)pyrene	C4SL	5	1.9		< 0.10	< 0.10	1.9
Benzo(b)fluoranthene	S4UL	2.6	2.2		< 0.10	< 0.10	2.2
Benzo(ghi)perylene	S4UL	320	1.1		< 0.10	< 0.10	1.1
Benzo(k)fluoranthene	S4UL	77	0.87		< 0.10	< 0.10	0.87
Chrysene	S4UL	15	1.8		< 0.10	< 0.10	1.8
Dibenz(a,h)anthracene	S4UL	0.24	<LoD		< 0.10	< 0.10	< 0.10
Fluoranthene	S4UL	280	2.9		0.26	0.43	2.9
Fluorene	S4UL	170	<LoD		< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	S4UL	27	1.2		< 0.10	< 0.10	1.2
Naphthalene	S4UL	2.3	<LoD		< 0.10	< 0.10	< 0.10
Phenanthrene	S4UL	95	0.96		< 0.10	< 0.10	0.96
Phenol	S4UL	120	<LoD		< 0.10	< 0.10	< 0.10
Pyrene	S4UL	620	2.6		0.23	0.42	2.6
<b>Organics - Banded TPH (unspeciated)</b>							
EC >5-EC6 (unspeciated)	S4UL	42	<LoD		< 1.0	< 1.0	< 1.0
EC >6-EC7 (unspeciated)	S4UL	70	<LoD		< 1.0	< 1.0	< 1.0
EC >7-EC8 (unspeciated)	S4UL	100	<LoD		< 1.0	< 1.0	< 1.0
EC >08-EC10 (unspeciated)	S4UL	27	<LoD		< 1.0	< 1.0	< 1.0
EC >10-EC12 (unspeciated)	S4UL	74	<LoD		< 1.0	< 1.0	< 1.0
EC >12-EC16 (unspeciated)	S4UL	140	<LoD		< 1.0	< 1.0	< 1.0
EC >16-EC21 (unspeciated)	S4UL	260	8.6		< 1.0	< 1.0	8.6
EC >21-EC35 (unspeciated)	S4UL	1100	32		< 1.0	< 1.0	32

## **Appendix F    Site Photographs**



*Photo 1 – Site entrance facing west*



*Photo 2 – Photograph facing east, along the sites northern boundary*



*Photo 3 – Photograph facing east, along the sites northern boundary*





*Photo 4 – Photograph from the centre of the site, facing southeast*



*Photo 5 – Photograph facing south, along the sites western boundary*



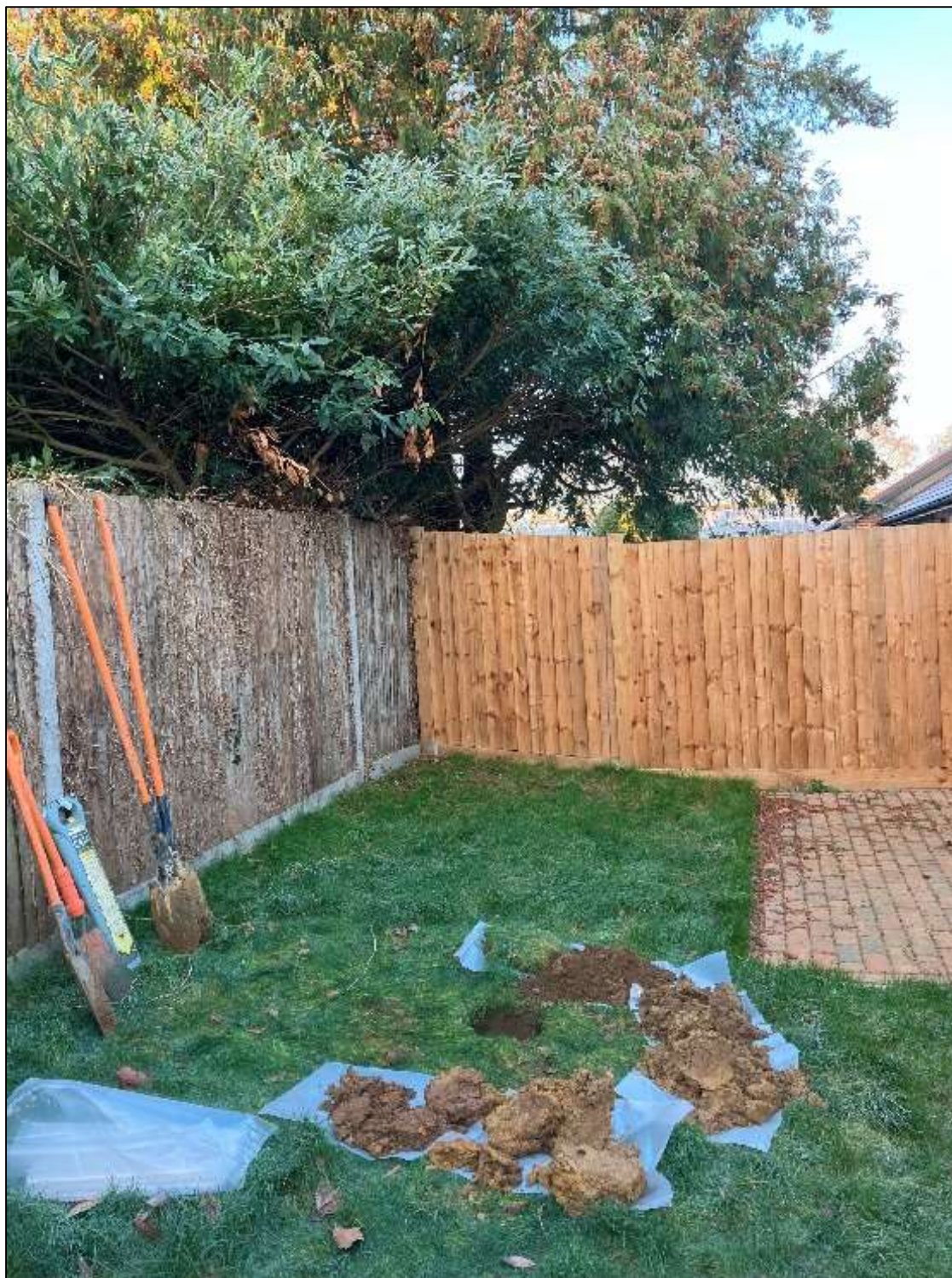
*Photo 6 – Rear garden of the westernmost property. Facing southeast.*



*Photo 7 – Read garden of the central property. Facing southeast*



*Photo 8 – Adjacent to sites southwestern boundary. Facing south.*



*Photo 9 – Rear garden of property where trial pit S1-TP01 was located*