REMEDIATION STRATEGY & VERIFICATION PLAN
of a site at
REAR OF 39 SECOND CROSS ROAD, TWICKENHAM
for
ANTHONY C BIANCHI

Contaminated Land Solutions

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1 EXECUTIVE SUMMARY.

A phase 1 desktop study, phase 2 intrusive investigations and contamination tests have been undertaken by GO Contaminated Land Solutions Ltd.

The proposed site usage is residential, comprising of a two-storey dwelling with a private garden.

Based on information from the previous reports the remedial actions required comprise:

- Removal from site of made ground to a depth of the natural stratum in soft landscaped and permeable areas

- Clean sub-soil and topsoil should be imported to bring the site back to finished levels

- Installation of appropriate water supply pipe

Prior to the removal of any spoil, the WAC testing results should be agreed with the facility to which the spoil is being transported, and if any additional testing is required, this should be completed. It is critical that the WAC results are representative of the material to be disposed of and therefore care must be taken to ensure that different materials are not mixed. Guidance can be obtained from Environment Agency document Waste Sampling and Testing for Disposal to Landfill.

Records will need to be retained and collated and a verification report prepared on completion of the remediation works.

It is considered that provided the recommendations of this report are implemented that the risk to sensitive receptors will be reduced to an acceptable level for the proposed development.

Risk Summary

Very Low	Low	Moderate / Low	Moderate	High

		Receptors				
		Site Users	Ground Workers	Neighbours	Proposed Building	Aquifer
Sources	Made Ground (On site) (Lead)					
	Former War Surplus Yard and Smithy (Off-Site) (Lead)					
	Naturally occurring contaminants					

2 BRIEF

Mr Anthony Bianchi requested GO Contaminated Land Solutions to develop a remediation strategy for a site at Rea of 39 Second Cross Road, Twickenham.

This report should be read in conjunction with the following GO Contaminated Land Solutions Reports:

- Phase 1 environmental report, ref: 1985-P1E-1, issued November 2020
- 1985-P2E-Scope, issued February 2024,
- Phase 2 environmental investigation, ref: 1985-P2E-1, issued April 2024

3 PRINCIPLES OF REMEDIATION

The principles of the strategy are to:

- Demonstrate that the level of any remaining contamination does not represent a significant risk to any on-site or off-site receptors.
- Remove all made ground from areas where soft landscaping and permeable areas are proposed.
- Import clean sub-soil and topsoil to bring the site back to finished levels
- Install appropriate water supply pipe.

4 PREVIOUS CONTAMINATION TESTING

The Phase 2 Environmental Investigation identified exceedances for lead in all samples.

Leachate testing was carried out throughout the depth of the made ground encountered.

All the leachate results were found to be above the WGV of 10ug/l for lead.

The level of lead contamination identified together with the high leachability is considered to be an unacceptable risk to on and off-site receptors and therefore appropriate remediation is required.

5 PROPOSED DEVELOPMENT

The proposed development comprises a two-storey detached residential property and a private garden.

6 REVISED CONCEPTUAL MODEL

The legislative framework for the regulation of contaminated land is embodied in Part IIA of the Environmental Protection Act 1990, implemented in the Contaminated Land (England) Regulations 2000. This legislation allows for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment. The approach adopted by UK contaminated land policy is that of “suitability for use” which implies that the land should be suitable for its current use and made suitable for any proposed future use.

In this revised contamination assessment the site has been modelled using the Source-Pathway-Receptor approach to produce a site specific conceptual model.

Source - substances or potential contaminants which may cause harm

Pathway - a linkage or route between a source and receptor

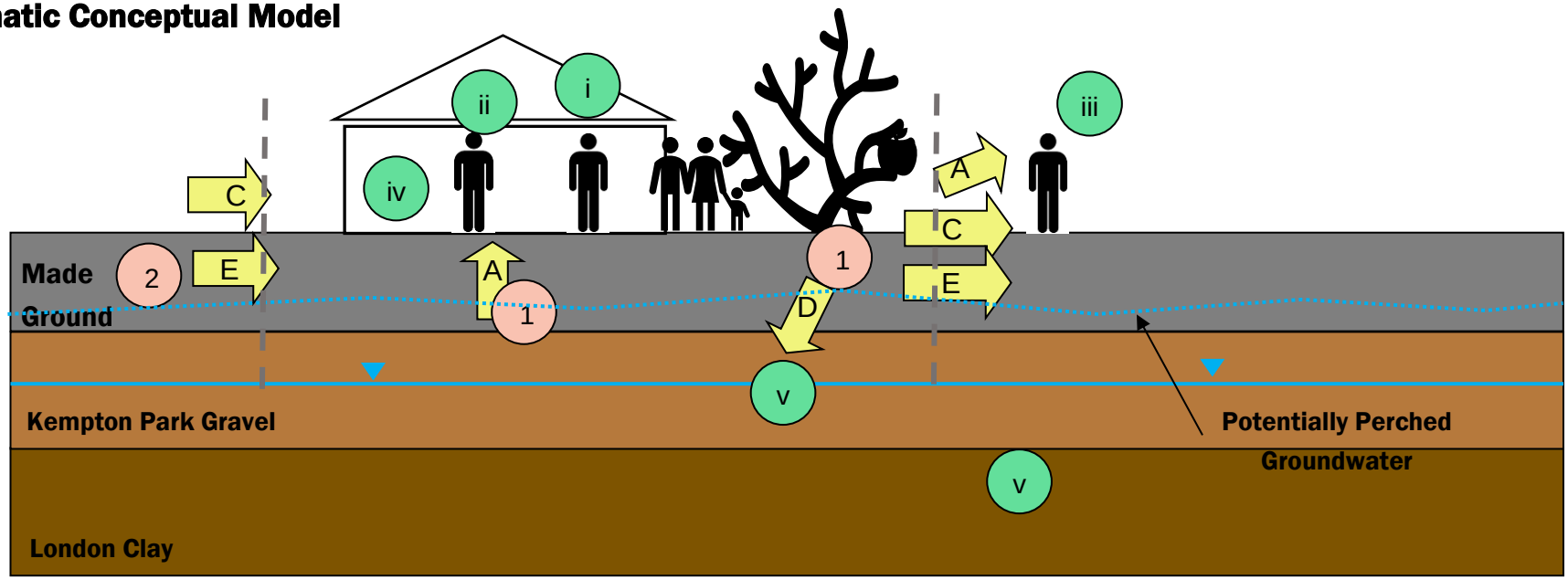
Receptor - humans, plant life, groundwater etc., which could be harmed by a contaminant

Geological records indicate that the site is underlain by an aquifer in the superficial stratum and therefore there is a potential for contaminants to be transported both to and from site in the groundwater.

From the information available at present a revised conceptual model has been considered.

		Potential pathways												
		Inhalation of contaminated vapour	Inhalation of contaminated dust	Direct Soil Ingestion	Direct dermal contact	Inhalation of asbestos	Drinking contaminated water supply	Direct contact of soil with building materials	Surface water run-off	Surface water percolation to groundwater	Migration via groundwater	Build-up of ground gas	Comments on discounted pathways	
Receptors	Site Users	N	Y	Y	Y	N	Y					N	Only lead identified as exceedance, therefore vapour pathway not considered significant	No potentially significant sources of land gas identified.
	Ground Workers	N	Y	Y	Y	N						N		
	Neighbours	N	Y			N			Y		Y	N	No asbestos identified	
	Proposed Building							N				N	Geotechnical investigation completed	
	Watercourse								N		N		No major watercourse identified nearby.	
	Aquifer									Y				

Schematic Conceptual Model



Sources	Pathways	Receptors
1 Made Ground (Lead) (On Site)	A Inhalation, ingestion, dermal contact	i Site Users
2 Army surplus yard and smithy (Lead) (Off Site)	B Drinking contaminated water supply	ii Ground Workers
	C Surface water run-off	iii Neighbours
	D Surface water percolation to groundwater	iv Proposed Building
	E Migration via groundwater	v Groundwater (Principal Aquifer)

7 REVISED RISK ASSESSMENT

The level of information provided by the previous reports, together with the other information within the report is considered suitable to provide the data for a satisfactory risk assessment for the site. While there will always be uncertainties due to known or unknown gaps in information it is considered that sufficient information is available to reduce those uncertainties to within acceptable limits for the nature of the site under review.

An asbestos survey of existing structures and infrastructure (as defined under Section 5(a) of the Control of Asbestos Regulations 2012) was beyond the brief of this report. The risk assessment has been undertaken on the basis that should asbestos be identified within buildings or infrastructure, these materials will be removed appropriately by licensed contractors and asbestos materials disposed of in accordance with legal requirements prior to demolition or other works in order to avoid contaminating soils at the site.

Sources	Potential pollutant	Receptor	Pathway	Hazard severity	Likelihood of occurrence	Risk / Significance	Comment & control measures
Made ground impacted by past use (On Site)	Lead	Site Users	Dermal contact	Medium	Likely	Moderate risk	Remediation required
			Soil Ingestion and Home Produce Consumption	Medium	Likely	Moderate risk	
			Inhalation of contaminated dust	Medium	Low likelihood	Moderate/Low risk	
			Drinking of water from supply impacted by contaminated soil	Mild	Unlikely	Very low risk	It is not considered that barrier supply pipe is required. This report should be provided to the water supplier for confirmation
		Ground Workers	Dermal contact	Medium	Likely	Moderate risk	Information to be contained in site Health & Safety Plan and File. Use of appropriate PPE and normal good hygiene measures. Appropriate dust control measures during construction.
			Soil Ingestion	Medium	Likely	Moderate risk	
			Inhalation of contaminated dust	Medium	Likely	Moderate risk	

Sources	Potential pollutant	Receptor	Pathway	Hazard severity	Likelihood of occurrence	Risk / Significance	Comment & control measures
Made ground impacted by past use (On Site)	Lead	Neighbours	Inhalation of contaminated dust (during construction)	Medium	Low likelihood	Moderate/Low risk	Appropriate dust control measures during construction.
			Inhalation of contaminated dust (after construction)	Medium	Unlikely	Low risk	No action required.
			Surface water run-off	Medium	Low likelihood	Moderate/Low risk	Remediation required
			Lateral migration of groundwater transporting contaminants	Medium	Low likelihood	Moderate/Low risk	

Sources	Potential pollutant	Receptor	Pathway	Hazard severity	Likelihood of occurrence	Risk / Significance	Comment & control measures
Made ground impacted by past use (On Site)	Lead	Aquifer	Vertical percolation to groundwater via Foundations	Medium	Likely	Moderate risk	.Remediation required
			Vertical percolation to groundwater via soft landscaped and permeable areas	Medium	Likely	Moderate risk	
			Percolation to groundwater via SuDS	Medium	Likely	Moderate risk	

Sources	Potential pollutant	Receptor	Pathway	Hazard severity	Likelihood of occurrence	Risk / Significance	Comment & control measures
Former War Surplus Yard and Smithy (Off Site)	Metals Hydrocarbons PAHs	Site Users	Dermal contact	Medium	Likely	Moderate risk	Remediation required
			Soil Ingestion and Home Produce Consumption	Medium	Likely	Moderate risk	
			Inhalation of contaminated dust	Medium	Low likelihood	Moderate/Low risk	
			Drinking of water from supply impacted by contaminated soil	Mild	Unlikely	Very low risk	It is not considered that barrier supply pipe is required. This report should be provided to the water supplier for confirmation

Sources	Potential pollutant	Receptor	Pathway	Hazard severity	Likelihood of occurrence	Risk / Significance	Comment & control measures
Former War Surplus Yard and Smithy (Off Site)	Metals Hydrocarbons PAHs	Ground Workers	Dermal contact	Medium	Likely	Moderate risk	Information to be contained in site Health & Safety Plan and File. Use of appropriate PPE and normal good hygiene measures. Appropriate dust control measures during construction.
			Soil Ingestion	Medium	Likely	Moderate risk	
			Inhalation of contaminated dust	Medium	Likely	Moderate risk	

Any visual or olfactory evidence of contamination noted during works should be investigated by a suitably qualified person and their recommendations implemented.

8 SITE WORKS

8.1 Excavation Arisings

Spoil removed from the site should be taken to an appropriate land fill facility.

If any potentially contaminated spoil is to be removed from site, the Waste Acceptance Criteria (WAC) testing should be agreed with the facility to which the spoil is being transported. It is critical that the WAC results are representative of the material to be disposed of and therefore care must be taken to ensure that different materials are not mixed. Guidance can be obtained from Environment Agency document *Waste Sampling and Testing for Disposal to Landfill*.

8.2 Soft Landscaping

Leachate testing has been undertaken on the full depth of made ground and it has been determined that the made ground is not suitable to remain on site due to the high leachability of the lead. Therefore the full depth of made ground should be removed.

Clean soil free from invasive plants and complying with the relevant criteria, refer to appendix D, shall be used to replace excavated material and bring the soft landscaping up to finished level. Assessment levels used should be for residential with plant uptake.

Care should be taken when importing soils and aggregates as asbestos is a common contaminant, even in certified materials.

8.3 External Permeable Hardstanding

The site is located over a principal aquifer. Lead leachate testing has been carried out within the full depth of made ground.

The underlying made ground should be removed to a depth of natural ground.

8.4 External Impermeable Hardstanding

Underlying made ground below impermeable hardstand can remain on the site. The pavement construct shall be a minimum of 300mm in order to provide a suitably robust barrier between any remaining potentially contaminated made ground and site users.

8.5 Existing Mature Planting

There are a mature trees and shrubs, which are to be retained in the soft landscaping

Made ground should be carefully removed from around the roots in such a manner as not to damage the roots.

Removal of soil:

- Carefully remove any contaminated soil by hand digging and/or wet digging (hydro-jet) to a depth of natural ground in so far as practicable
- Do not sever any roots, if cut by accident then should be trimmed with a sharp blade
- Work in small sections covering exposed roots with wet sacking
- Minimise exposure of roots to air to prevent drying out

Replacement of soil:

- Sharp sand placed around exposed roots and then covered with topsoil/mulch mix
- No raising of the land
- No compaction of topsoil

Scheduled Maintenance:

- Monitor via inspection programme
- Dress (loosely) with further soil/mulch mix when sand is exposed

It is considered unlikely that anyone will dig in this area and if they tried the roots would prevent them digging to a great depth, the risk from any remaining made ground around the roots is therefore not considered to be significant.

8.6 Site Boundaries

Around the site perimeter where it is not practicable to remove soil to natural ground due

to risk of instability of neighbouring structures, walls or fences, the ground should be excavated down to level with the underside of the foundation and then battered at a slope of one in three down to the natural ground below proposed finished level (refer to appendix F). In the case of shallow fence posts additional temporary support should be provided to permit excavation to reach the specified depth.

8.7 Water Supply

Appropriate water supply pipe should be installed in accordance with the requirements of the water supplier.

The only contaminant identified to exceed screening values was lead. Lead does not readily affect water supply pipes and therefore it is not considered that a protecta-line barrier pipe is required.

Confirmation from the water supplier on the appropriate water supply pipe will be included in the verification report.

8.8 Watching Brief

Soil contamination sampling and testing was undertaken across the site, sufficient to ensure an acceptable level of certainty of the nature of the made ground.

A watching brief is to be maintained by a suitably experience person during ground works with instructions to advise GO Contaminated Land Solutions Ltd should any made ground appear to vary significantly from the soil sampled and tested.

A watching brief and discovery strategy to implemented by the contractor is included in appendix E.

If any potential contamination is identified works must be stopped and GO Contaminated Land Solutions Ltd advised. Works must not recommence until further investigation has been completed and if required a revised remediation strategy has been produced to remediate the impacted area.

9 VERIFICATION PLAN

On completion of remediation a verification report must be prepared and submitted to

the local authority for approval. The report must include the information detailed below.

To demonstrate that the made ground within the soft landscape and permeable areas has been removed to a depth of 600mm or to natural strata, photographs will be taken of the proposed soft landscaped areas following removal of made ground. Examples of how to take photographs showing depth and locations are contained in appendix G. A plan showing the locations of the photographs will be prepared for inclusion in the verification report.

Test certification for any proposed fill, demonstrating compliance with the requirements of section 8.2, is to be obtained prior to importation, the list of determinands is provided in appendix D. Documentation such as purchase records to confirm the volume of imported material is also to be provided.

After placing of the topsoil verification samples will be taken and tested. The clean fill for gardens and landscaped areas should comply with the requirements set out in appendix D.

Verification pits will be excavated at each sampling location to a minimum depth of 600mm to confirm the thickness of the capping layer. A minimum of three samples will be taken per 100m3 of imported soil.

Documentation to be provided to demonstrate that the correct grade of water supply pipe has been installed.

Full details must be provided of any unforeseen contamination encountered and the remedial actions taken and communications with the local authority.

An indicative plan of the proposed sample locations and verification pits is contained in appendix B. The actual locations will be determined during the verification visit.

10 DUTY OF CARE DOCUMENTATION

A full record of “Duty of Care” documentation must be retained and a copy provided to GO Contaminated Land Solutions. This will include Waste Transfer Notes (WTN) and for hazardous waste, a Consignment Note, also tickets from the landfill confirming receipt at their facility.

Documentation must be provided to demonstrate compliance of imported fill with the

criteria in appendix D.

The above documentation must be provided for inclusion in the Verification Report.

11 CONCLUSIONS

11.1 The site was most recently used as the rear garden of 39 Second Cross Road. The Phase 2 Environmental Investigation identified exceedances for lead and lead leachate in all samples. Therefore appropriate remediation is required.

11.2 Removal of made ground in soft landscaped and permeable areas, will ensure the risk to site residents and potential off-site receptors will be reduced to an acceptable level for the continued residential end use.

11.3 A water supply pipe should be installed in accordance with the requirements of the water supplier.

11.4 For any potentially contaminated material removed from site, the Waste Acceptance Criteria (WAC) testing should be agreed with the facility to which the spoil is being transported.

11.5 It is recommended that appropriate dust control measures are implemented during construction. To assist in establishing what would be appropriate reference should be made to the Institute of Air Quality Management report entitled: *Guidance on the assessment of dust from demolition and construction*, version 1.1.

11.6 If any unexpected contamination is encountered during development (eg discoloured soil or odours or buried waste), then all works should be stopped and be investigated by a suitably qualified person and their recommendations implemented. The council should be notified and any additional remediation requirements agreed in writing before any works recommence. A watching brief and discovery strategy is included in appendix E.

11.7 Therefore if the strategy recommended herein is adopted the risk to site users and potential off-site receptors will be reduced to an acceptable level for the proposed residential end use.

11.8 Records will need to be retained and collated and a verification report prepared on completion of the remedial works.

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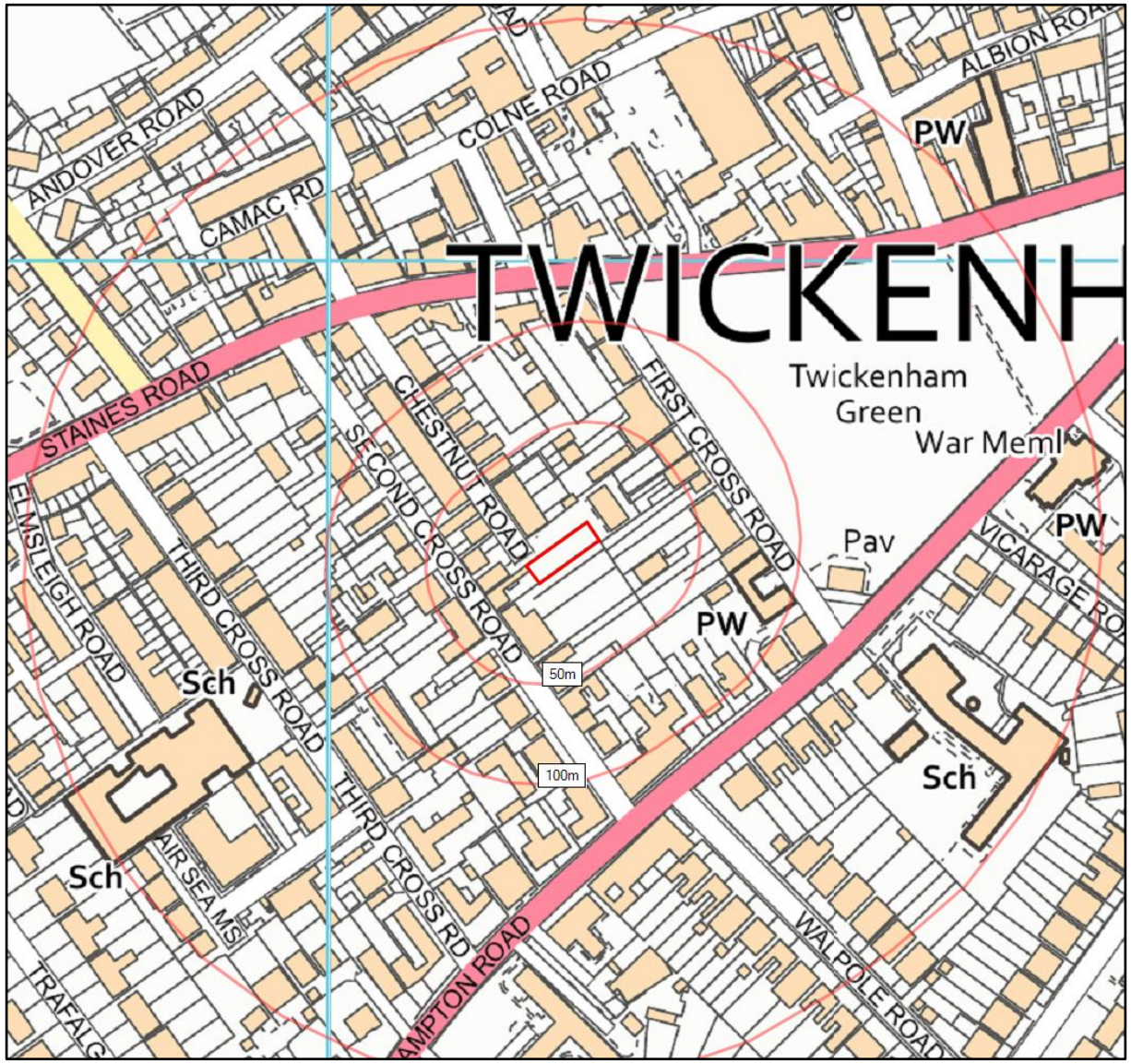
Appendix A – Site Location Plan



1985-P3E-1: 39 Second Cross Road, Twickenham
Anthony C Bianchi

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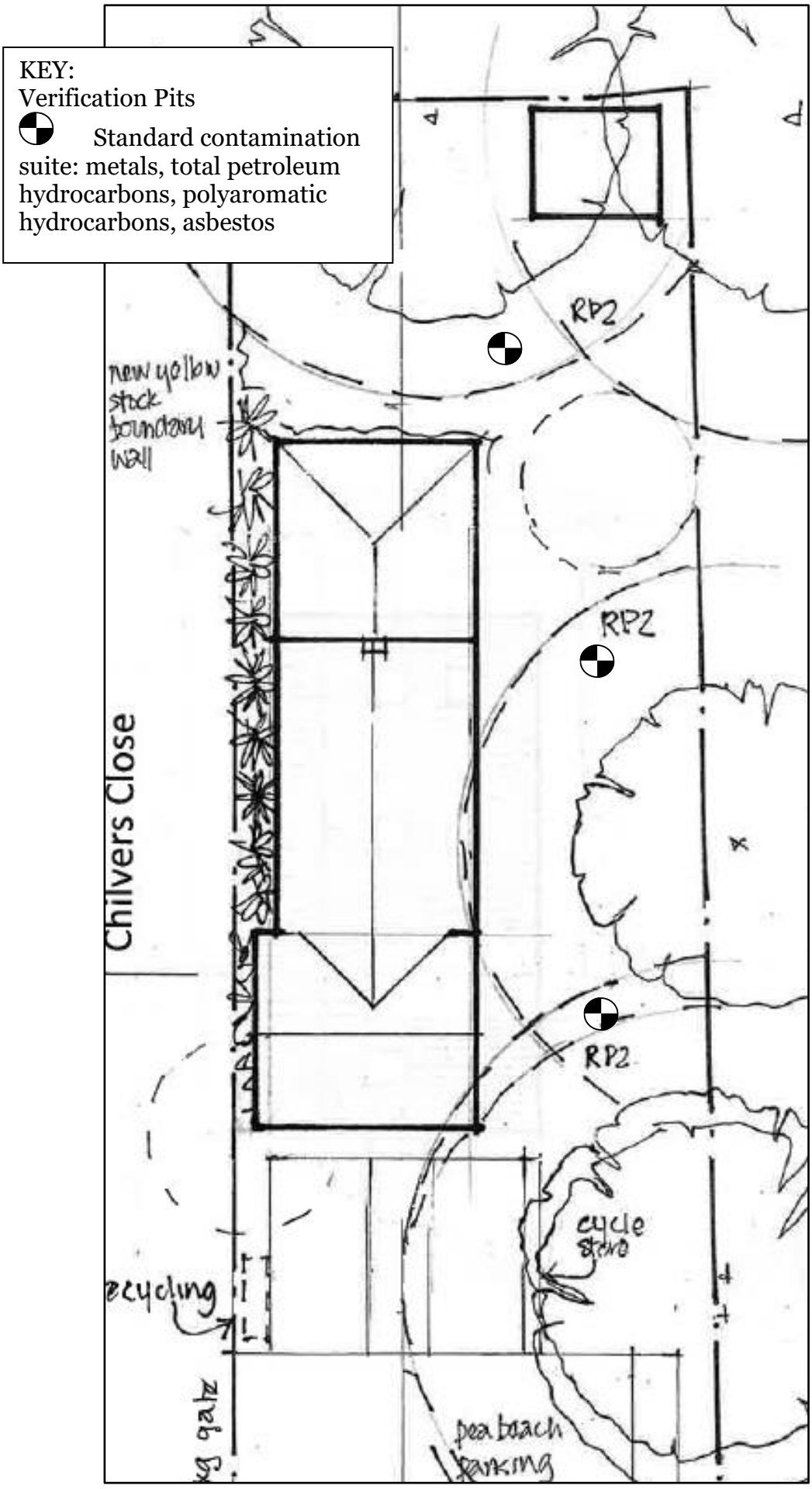
Appendix B – Indicative Verification Sampling Plan



1985-P3E-1: 39 Second Cross Road, Twickenham
Anthony C Bianchi

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Appendix C – Previous Contamination Testing

RESIDENTIAL WITH HOMEGROWN PRODUCE (RwHP) - SOM 1% - 12 March 2024									
Determinand	Unit	GAC	Source	Concentration				Number of Tests	Number of Exceedences
				BH3	BH4	BH5	BH6		
Metals									
Arsenic	mg/kg	37.0	DEFRA C4SL	25.5	22.6	26.0	41.3	4	0
Cadmium	mg/kg	22.1	DEFRA C4SL	0.7	0.9	0.6	0.7	4	0
Chromium (III)	mg/kg	14300.0	ATRISK SSV	22.9	25.9	27.5	31.5	4	0
Copper	mg/kg	4730.0	ATRISK SSV	110	101	112	152	4	0
Lead	mg/kg	200.0	DEFRA C4SL	791	672	760	1420	4	4
Mercury (Inorganic)	mg/kg	180.0	ATRISK SSV	1.9	1.6	2.1	5.4	4	0
Nickel	mg/kg	136.0	ATRISK SSV	24.9	22.0	25.6	37.4	4	0
Selenium	mg/kg	375.0	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	4	0
Zinc	mg/kg	20000.0	ATRISK SSV	393	431	330	618	4	0
Inorganics									
Free Cyanide	mg/kg	34.0	ATRISK SSV	< 1.0	< 1.0	< 1.0	< 1.0	4	0
Hexavalent Chromium	mg/kg	20.5	DEFRA C4SL	< 0.8	< 0.8	< 0.8	< 0.8	4	0
Miscellaneous									
Moisture Content	%	-	-	22.2	19.9	21.9	20.4	4	-
pH	pH units	-	-	7.8	7.5	7.5	7.7	4	-
Soil Organic Matter	%	-	-	3.5	3.1	3.3	3.9	4	-
Stones Content	%	-	-	12.0	< 0.1	< 0.1	17.8	4	-
Phenols									
Total Monohydric Phenols	mg/kg	280.0	LQM/CIEH	< 5	< 5	< 5	< 5	4	0
Polyaromatic hydrocarbons									
Naphthalene	mg/kg	0.83	ATRISK SSV	0.05	0.05	0.02	0.13	4	0
Acenaphthylene	mg/kg	170.0	LQM/CIEH	0.03	0.04	< 0.02	0.10	4	0
Acenaphthene	mg/kg	608.0	ATRISK SSV	< 0.02	0.03	< 0.02	< 0.02	4	0
Fluorene	mg/kg	735.0	ATRISK SSV	< 0.02	0.03	< 0.02	0.04	4	0
Phenanthrene	mg/kg	95.0	LQM/CIEH	0.34	0.56	0.21	0.82	4	0
Anthracene	mg/kg	10200.0	ATRISK SSV	0.06	0.12	0.05	0.13	4	0
Fluoranthene	mg/kg	983.0	ATRISK SSV	0.78	1.20	0.55	1.90	4	0
Pyrene	mg/kg	668.0	ATRISK SSV	0.65	1.00	0.47	1.61	4	0
Benzo(a)anthracene	mg/kg	7.2	LQM/CIEH	0.35	0.51	0.27	0.89	4	0
Chrysene	mg/kg	15	LQM/CIEH	0.37	0.63	0.32	0.92	4	0
Benzo(b)fluoranthene	mg/kg	2.6	LQM/CIEH	0.44	0.62	0.31	1.19	4	0
Benzo(k)fluoranthene	mg/kg	77	LQM/CIEH	0.18	0.24	0.13	0.49	4	0
Benzo(a)pyrene	mg/kg	4.95	DEFRA C4SL	0.34	0.49	0.25	0.96	4	0
Indeno (1,2,3-cd) pyrene	mg/kg	27	LQM/CIEH	0.24	0.31	0.17	0.66	4	0
Dibenzo(a,h)anthracene	mg/kg	0.24	LQM/CIEH	0.05	0.07	0.04	0.14	4	0
Benzo(g,h,i)perylene	mg/kg	320	LQM/CIEH	0.26	0.37	0.18	0.72	4	0
TPH CWG									
>C_5-C_6 Aliphatic	mg/kg	42.7	ATRISK SSV	<0.01	<0.01	<0.01	<0.01	4	0
>C_6-C_8 Aliphatic	mg/kg	99.3	ATRISK SSV	<0.05	<0.05	<0.05	<0.05	4	0
>C_8-C_{10} Aliphatic	mg/kg	13.9	ATRISK SSV	<2.0	<2.0	<2.0	<2.0	4	0
>C_{10}-C_{12} Aliphatic	mg/kg	81.7	ATRISK SSV	<2.0	<2.0	<2.0	<2.0	4	0
>C_{12}-C_{16} Aliphatic	mg/kg	385.0	ATRISK SSV	<3.0	<3.0	<3.0	<3.0	4	0
>C_{16}-C_{35} Aliphatic	mg/kg	210000.0	ATRISK SSV	<10.0	<10.0	<10.0	<10.0	4	0
>C_5-C_7 Aromatic (benzene)	mg/kg	0.14	ATRISK SSV	<0.01	<0.01	<0.01	<0.01	4	0
>C_7-C_8 Aromatic (toluene)	mg/kg	113.0	ATRISK SSV	<0.05	<0.05	<0.05	<0.05	4	0
>C_8-C_{10} Aromatic	mg/kg	20.5	ATRISK SSV	<2.0	<2.0	<2.0	5.0	4	0
>C_{10}-C_{12} Aromatic	mg/kg	70.0	ATRISK SSV	<2.0	<2.0	<2.0	4.0	4	0
>C_{12}-C_{16} Aromatic	mg/kg	165.0	ATRISK SSV	<2.0	<2.0	<2.0	4.0	4	0
>C_{16}-C_{21} Aromatic	mg/kg	319.0	ATRISK SSV	<3.0	<3.0	<3.0	8.0	4	0
>C_{21}-C_{35} Aromatic	mg/kg	1120.0	ATRISK SSV	<21.0	<21.0	<21.0	17.0	4	0

RESIDENTIAL WITH HOMEGROWN PRODUCE (RwHP) - SOM 1% - 4 April 2024									
Determinand	Unit	GAC	Source	Concentration				Number of Tests	Number of Exceedences
				BH13	BH14	BH15	BH16		
Metals									
Lead	mg/kg	200.0	DEFRA C4SL	388.0	381.0	282.0	836.0	4	4

WATER GUIDELINE VALUES (WGV) - 12 March 2024									
Determinand	Unit	WGV	Source	Concentration				Number of Tests	Number of Exceedances
				BH3	BH4	BH5	BH6		
Metals									
Lead	µg/l	10	UK DWS	43	37	140	58	4	4

WATER GUIDELINE VALUES (WGV) - 4 April 2024									
Determinand	Unit	WGV	Source	Concentration				Number of Tests	Number of Exceedances
				BH13	BH14	BH15	BH16		
Metals									
Lead	µg/l	10	UK DWS	128	61	107	61	4	4

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DETS Report No: 24-02807

Site Reference:	24-52810
Project / Job Ref:	TPHCWG Analysis
Order No:	PO-12367
Sample Receipt Date:	18/03/2024
Sample Scheduled Date:	18/03/2024
Report Issue Number:	1
Reporting Date:	25/03/2024

Authorised by:

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.

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4480

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-02807	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	
The Environmental Laboratory Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: 24-52810	**~TP / BH No**	355443	355444	355445	355446	
~Project / Job Ref: TPHCWG Analysis	**~Additional Refs**	BH3	BH4	BH5	BH6	
~Order No: PO-12367	**~Depth (m)**	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	
Reporting Date: 25/03/2024	**DETS Sample No**	704869	704870	704871	704872	

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	5	
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	4	
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	4	
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	8	
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10	17	
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	38	
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	

~ Sample details provided by the customer

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: 24-02807	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	
The Environmental Laboratory Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: 24-52810	**~TP / BH No**	355443	355444	355445	355446	
~Project / Job Ref: TPHCWG Analysis	**~Additional Refs**	BH3	BH4	BH5	BH6	
~Order No: PO-12367	**~Depth (m)**	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	
Reporting Date: 25/03/2024	**DETS Sample No**	704869	704870	704871	704872	

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

~ Sample details provided by the customer

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

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-02807	
The Environmental Laboratory Ltd	
~Site Reference: 24-52810	
~Project / Job Ref: TPHCWG Analysis	
~Order No: PO-12367	
Reporting Date: 25/03/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
704869	355443	BH3	0.20 - 0.60	19	Black sandy loam with vegetation
704870	355444	BH4	0.20 - 0.60	18.7	Brown sandy loam with vegetation
704871	355445	BH5	0.20 - 0.60	23.9	Brown sandy loam with stones and vegetation
704872	355446	BH6	0.20 - 0.60	17.5	Brown sandy loam with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~ Sample details provided by the customer

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

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-02807
The Environmental Laboratory Ltd
~Site Reference: 24-52810
~Project / Job Ref: TPHCWG Analysis
~Order No: PO-12367
Reporting Date: 25/03/2024

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 the customer

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618

cs@elab-uk.co.uk
info@elab-uk.co.uk

2683

Certificate of Analysis

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	24-52810
Issue:	1
Date of Issue:	28/03/2024
Contact:	Peter George
Customer Details:	GO Contaminated Land Solutions Ltd 4 De Frene Road Sydenham London SE26 4AB
Quotation No:	Q24-04324
Order No:	Not Supplied
Customer Reference:	1985
Date Received:	14/03/2024
Date Approved:	28/03/2024
Details:	39 Second Cross Road, Twickenham
Approved by:	

Ben Rees, Customer Services Assistant

Sample Summary

Report No.: 24-52810, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
355443	BH3 0.20 - 0.60	12/03/2024	14/03/2024	Silty loam	
355444	BH4 0.20 - 0.60	12/03/2024	14/03/2024	Silty clayey loam	
355445	BH5 0.20 - 0.60	12/03/2024	14/03/2024	Silty clayey loam	
355446	BH6 0.20 - 0.60	12/03/2024	14/03/2024	Sandy silty loam	

Results Summary

Report No.: 24-52810, issue number 1

				ELAB Reference	355443	355444	355445	355446
				Customer Reference				
				Sample ID				
				Sample Type	SOIL	SOIL	SOIL	SOIL
				Sample Location	BH3	BH4	BH5	BH6
				Sample Depth (m)	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60
				Sampling Date	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Determinand	**Codes**	**Units**	**LOD**					
Soil sample preparation parameters								
Moisture Content	N	%	0.1		22.2	19.9	21.9	20.4
Stones Content	N	%	0.1		12.0	< 0.1	< 0.1	17.8
Material removed	N	%	0.1		12.0	< 0.1	< 0.1	17.8
Description of Inert material removed	N		0		Stones	None	None	Stones
Metals								
Arsenic	M	mg/kg	1		25.5	22.6	26.0	41.3
Cadmium	M	mg/kg	0.5		0.7	0.9	0.6	0.7
Chromium	M	mg/kg	5		22.9	25.9	27.5	31.5
Copper	M	mg/kg	5		110	101	112	152
Lead	M	mg/kg	5		791	672	760	1420
Mercury	M	mg/kg	0.5		1.9	1.6	2.1	5.4
Nickel	M	mg/kg	5		24.9	22.0	25.6	37.4
Selenium	M	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0
Zinc	M	mg/kg	5		393	431	330	618
Inorganics								
Free Cyanide	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8		< 0.8	< 0.8	< 0.8	< 0.8
Miscellaneous								
pH	M	pH units	0.1		7.8	7.5	7.5	7.7
Soil Organic Matter	U	%	0.1		3.5	3.1	3.3	3.9
Phenols								
Total Monohydric Phenols	N	mg/kg	5		< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons								
Naphthalene	SM	mg/kg	0.02		0.05	0.05	0.02	0.13
Acenaphthylene	SM	mg/kg	0.02		0.03	0.04	< 0.02	0.10
Acenaphthene	SM	mg/kg	0.02		< 0.02	0.03	< 0.02	< 0.02
Fluorene	S	mg/kg	0.02		< 0.02	0.03	< 0.02	0.04
Phenanthrene	SM	mg/kg	0.02		0.34	0.56	0.21	0.82
Anthracene	S	mg/kg	0.02		0.06	0.12	0.05	0.13
Fluoranthene	SM	mg/kg	0.02		0.78	1.20	0.55	1.90
Pyrene	SM	mg/kg	0.02		0.65	1.00	0.47	1.61
Benzo(a)anthracene	S	mg/kg	0.02		0.35	0.51	0.27	0.89
Chrysene	SM	mg/kg	0.02		0.37	0.63	0.32	0.92
Benzo(b)fluoranthene	SM	mg/kg	0.02		0.44	0.62	0.31	1.19
Benzo(k)fluoranthene	SM	mg/kg	0.03		0.18	0.24	0.13	0.49
Benzo(a)pyrene	S	mg/kg	0.02		0.34	0.49	0.25	0.96
Indeno(1,2,3-cd)pyrene	SM	mg/kg	0.02		0.24	0.31	0.17	0.66
Dibenzo(a,h)anthracene	SM	mg/kg	0.02		0.05	0.07	0.04	0.14
Benzo[g,h,i]perylene	SM	mg/kg	0.02		0.26	0.37	0.18	0.72
Total PAH(16)	NS	mg/kg	0.34		4.16	6.27	2.97	10.7

Results Summary

Report No.: 24-52810, issue number 1

			ELAB Reference	355443	355444	355445	355446
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH4	BH5	BH6
			Sample Depth (m)	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60	0.20 - 0.60
			Sampling Date	12/03/2024	12/03/2024	12/03/2024	12/03/2024
Determinand	**Codes**	**Units**	**LOD**				
Metals							
Lead 10:1 extract	N	ug/l	5	43	37	140	58

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY
Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 24-52810, issue number 1

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

In accordance with procedures, a 1kg soil sample should be analysed. For amounts less than this caution should be used when analysing the data as sample size is smaller than the recommended amount, therefore samples could be deemed as not being representative of the materials present on site.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)	F/mm2 (I)
355443	0.20 - 0.60	BH3	Brown Sandy Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355444	0.20 - 0.60	BH4	Brown Sandy Soil, Glass, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355445	0.20 - 0.60	BH5	Brown Sandy Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355446	0.20 - 0.60	BH6	Brown Sandy Soil, Stones, Clinker	No asbestos detected	n/t	n/t	n/t	n/t	n/t

Method Summary

Report No.: 24-52810, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Leachate metals 10:1 extract	N		27/03/2024	301	ICPMS
Free cyanide	N	As submitted sample	18/03/2024	107	Colorimetry
Hexavalent chromium	N	As submitted sample	15/03/2024	110	Colorimetry
pH	M	Air dried sample	18/03/2024	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	15/03/2024	118	ICPMS
Phenols in solids	N	As submitted sample	15/03/2024	121	HPLC
Asbestos identification	U	Air dried sample	18/03/2024	281	Microscopy
Soil organic matter	U	Air dried sample	15/03/2024	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 24-52810, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

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

End of Report

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618

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info@elab-uk.co.uk

UKAS TESTING 2683

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Certificate of Analysis

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	24-53137
Issue:	2. Replaces Analytical Report number 24-53137; issue no.1
Date of Issue:	17/04/2024
Contact:	Peter George
Customer Details:	GO Contaminated Land Solutions Ltd 4 De Frene Road Sydenham London SE26 4AB
Quotation No:	Q24-04324
Order No:	Not Supplied
Customer Reference:	1985
Date Received:	08/04/2024
Date Approved:	17/04/2024
Details:	39 Second Cross Road, Twickenham
Approved by:	

Ben Rees, Customer Services Assistant

Re-Issue Summary

Client: GO Contaminated Land Solutions Ltd
Address: 4 De Frene Road, Sydenham, London, SE26 4AB

Date: **17-Apr-24**

Report No.: **24-53137**

Issue: **2**

This report replaces 24-53137, issue: 1, issued: 11 April 2024

Reason for Change

1 - Client request – additional analysis

Details of Changes to Work / Results

Sample Refs:

Tests* / Dets*:
Leachate metals 10:1
NRA Leachate extraction

Key
A - Additional Work added
D - Work Deleted
E - Result Edited*
R - Work Repeated*

*If a result changed, please refer to the previous report for the old result. The new result will be shown in this report.

Re-issued by: Ben Rees, Customer Services Assistal **Approved by:** Ben Rees, Customer Services Assistal

Sample Summary

Report No.: 24-53137, issue number 2

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
357269	BH13 0.60 - 1.10	04/04/2024	08/04/2024	Silty loam	
357270	BH14 0.60 - 0.40	04/04/2024	08/04/2024	Sandy loam	
357271	BH15 0.60 - 1.00	04/04/2024	08/04/2024	Sandy loam	
357272	BH16 0.60 - 1.10	04/04/2024	08/04/2024	Silty loam	

Results Summary

Report No.: 24-53137, issue number 2

ELAB Reference	357269	357270	357271	357272
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	BH13	BH14	BH15	BH16
Sample Depth (m)	0.60 - 1.10	0.60 - 0.40	0.60 - 1.00	0.60 - 1.10
Sampling Date	04/04/2024	04/04/2024	04/04/2024	04/04/2024

Determinand	Codes	Units	LOD				
Soil sample preparation parameters							
Moisture Content	N	%	0.1	17.0	14.8	15.2	15.4
Material removed	N	%	0.1	10.5	9.1	8.5	13.1
Description of Inert material removed	N		0	Stones	Stones	Stones	Stones
Metals							
Lead	M	mg/kg	5	388	381	282	836

Results Summary

Report No.: 24-53137, issue number 2

			ELAB Reference	357269	357270	357271	357272
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH13	BH14	BH15	BH16
			Sample Depth (m)	0.60 - 1.10	0.60 - 0.40	0.60 - 1.00	0.60 - 1.10
			Sampling Date	04/04/2024	04/04/2024	04/04/2024	04/04/2024
Determinand	**Codes**	**Units**	**LOD**				
Metals							
Lead 10:1 extract	N	ug/l	5	128	61	107	61

Method Summary

Report No.: 24-53137, issue number 2

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Leachate metals 10:1 extract	N		16/04/2024	301	ICPMS
Aqua regia extractable metals	M	Air dried sample	09/04/2024	300	ICPMS

Tests marked N are not UKAS accredited

Report Information

Report No.: 24-53137, issue number 2

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

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

End of Report

Appendix D – Imported Material

Any imported material should be tested for the following parameters, and compared against the current environmental screening levels to ensure that the fill material meets the criteria for the proposed end use.

Care should be taken when importing soils and aggregates as asbestos is a common contaminant, even in certified materials.

Determinand	
Arsenic	
Cadmium	
Chromium	
Lead	
Mercury	
Nickel	
Copper	
Zinc	
Selenium	
Hexavalent Chromium	
pH Value	
Free Cyanide	
Naphthalene	
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benz(a)anthracene	
Chrysene	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
Benzo(a)pyrene	
Indeno(123-cd)pyrene	
Dibenz(ah)anthracene	
Benzo(ghi)perylene	
TOTAL PAH	
Aromatic Hydrocarbons	>C_5-C_7
	>C_7-C_8
	>C_8-C_{10}
	>C_{10}-C_{12}
	>C_{12}-C_{16}
	>C_{16}-C_{21}
	>C_{21}-C_{35}
Aliphatic Hydrocarbons	>C_5-C_6
	>C_6-C_8
	>C_8-C_{10}
	>C_{10}-C_{12}
	>C_{12}-C_{16}
	>C_{16}-C_{35}
TOTAL TPH	
Asbestos	

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Appendix E – Watching Brief and Discovery Strategy

Watching Brief and Discovery Strategy

DISPLAY AND AWARENESS

The Discovery Strategy must be placed on the Health & Safety Notice Board and displayed in a prominent area where all site staff are able to consult the document at any time.
Any member of the workforce entering the site to undertake any excavation must be made aware of the potential to discover contamination and the discovery strategy.

HOW TO IDENTIFY POTENTIAL CONTAMINATED MATERIAL

- Looks oily and has an oily odour.
- Solvent type of odour.
- Man-made materials in fill such as paint cans, car parts, glass fragments.
- Contains fragments of white asbestos sheeting, coal or coke clinker.
- Sand bags or subsurface concrete structures.
- Unusual colour.
- Asbestos cement or lagging.

(This list is not exhaustive. If in any doubt, please contact GO Contaminated Land Solutions)

PROCEDURE

If unexpected evidence of contamination is found the following procedures shall be adhered, including:

1. All site works at the position of the suspected contamination should stop.

2. Site Personnel to inform the Site Manager or Agent.

3. Visual and olfactory observations of the condition of the ground and the extent of contamination should be made and notification shall be given to Go Contaminated Land Solutions (GO CLS) Consultants as soon as practicable. GO CLS will then inform the Local Authority as soon as practicable. Should the contamination be likely to affect controlled waters the Environment Agency shall also be informed.

4. In the presence of a suitably qualified Environmental Consultant from GO CLS, investigation works shall commence to recover samples for testing and, using visual and olfactory observations of the condition of the ground, delineate the area over which contaminated materials are present.

5. Should GO CLS deem it appropriate, the affected material may be excavated and placed in a stockpile on a suitable impermeable surface. This should be suitably quarantined with no addition to, or removal of, the stockpile while chemical analysis is being undertaken. Alternatively, the material should remain in situ until laboratory test results have been obtained.

6. A photographic recorded should also be made of relevant observations.

7. GO CLS will determine an appropriate testing suite based on visual and olfactory observations.

8. Test results will be compared against current assessment criteria suitable for the future use of the area of the site affected.

9. If after testing the ground is found to be contaminated, the Local Authority Environmental Team shall be informed. After consultation with the Local Authority and if necessary, the Environment Agency, materials should either be removed for disposal to a licensed waste management facility or remediated to agreed clean-up criteria.

10. If the potential for contamination is severe or may lead to pollution of either groundwater or water courses, the Environment Agency shall be informed immediately as a potential environmental incident (see EA website).

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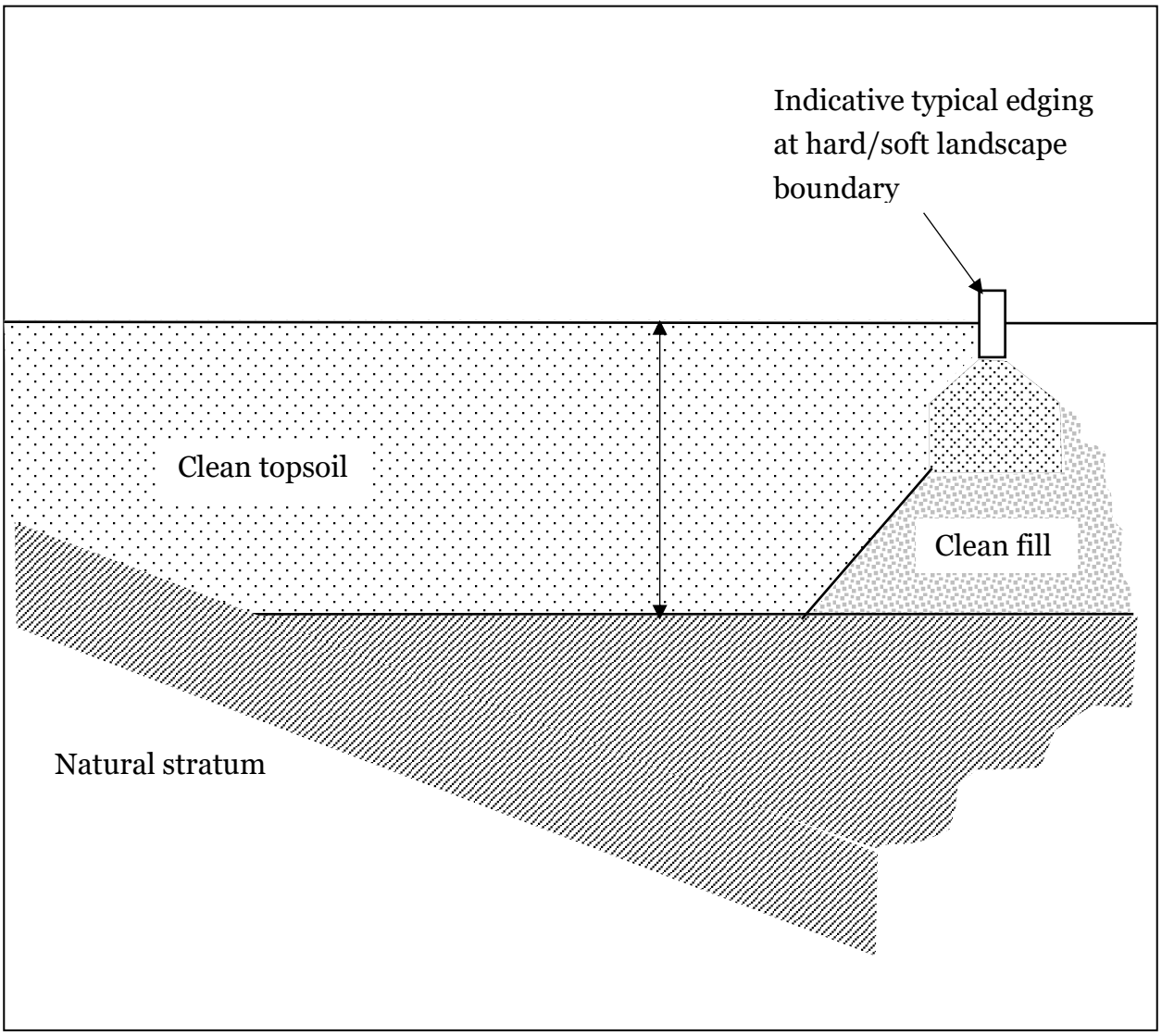
Appendix F – Indicative Capping Layer



Cross-section

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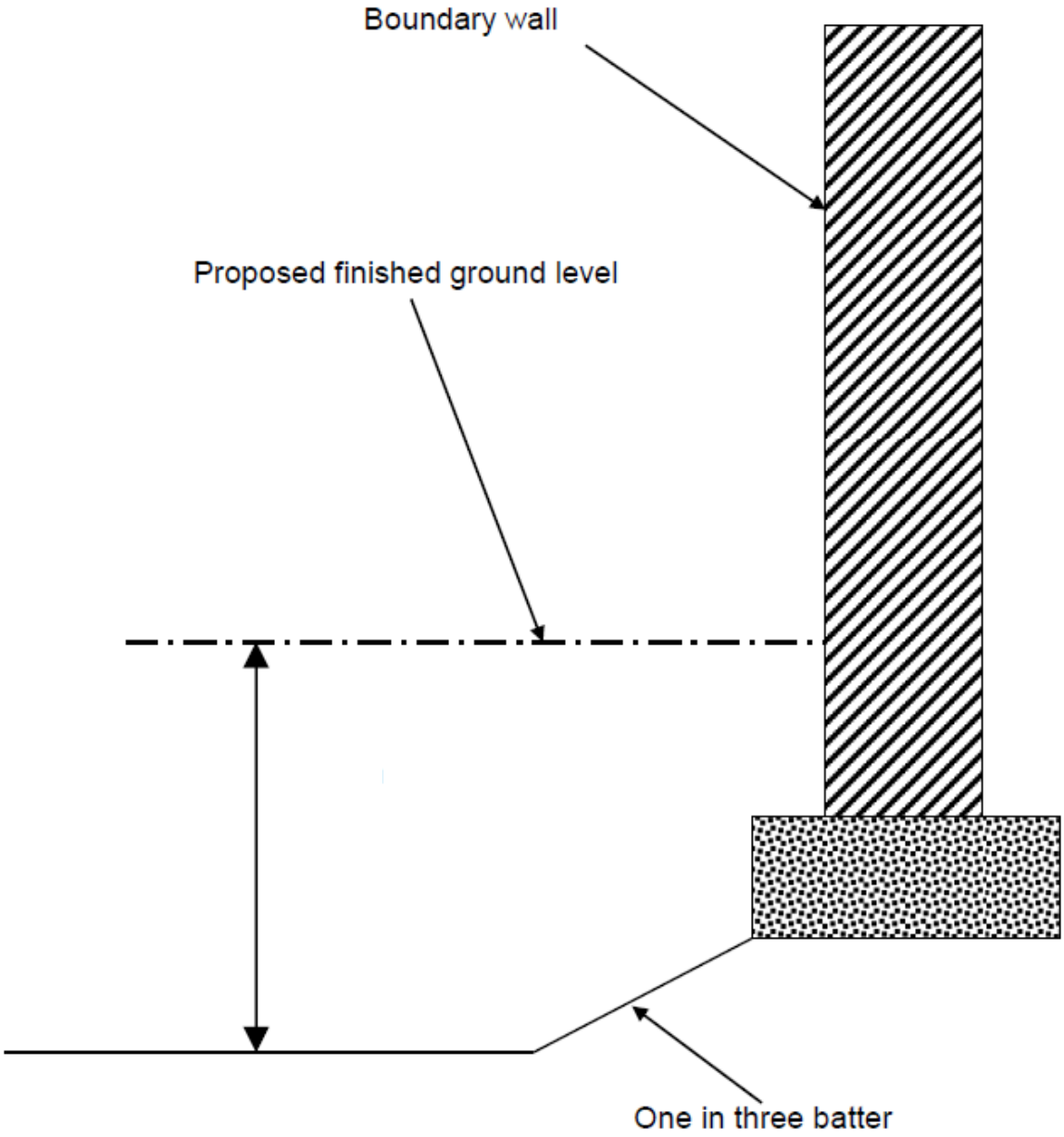
Appendix G – Indicative Boundary Wall Remediation



Indicative Schematic

If the boundary wall is acting as a retaining wall or appears to be unsound or there are any concerns regarding stability advice should be obtained from a civil, structural or geotechnical engineer.

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Appendix H – Example Record Photographs

Example A: Close up, showing the depth clearly.

Example A: Showing the location of the close up

Example B: Close up, showing the depth clearly

Example B: Showing the location of the close up