

Phase 3: Remediation Statement

99 Plymouth Grove, Manchester

JC Consulting

NE-260-004/REM

Solmek Ltd

12 Yarm Road
Stockton-on-Tees
TS18 3NA
Tel: 01642 607083

www.solmek.com

info@solmek.com

PHASE 3 REMEDIATION STATEMENT

99 PLYMOUTH GROVE, MANCHESTER

TABLE OF CONTENTS

1 OBJECTIVES & PRINCIPLES OF REMEDIATION STATEMENT....2
2 REVIEW OF SITE HISTORY AND INVESTIGATION WORKS....2
3 REMEDIATION STRATEGY....4
4 GENERAL REMEDIAL WORKS....6
5 VALIDATION TESTING AND REPORTING....7

APPENDICES

Appendix A: Figures
Appendix B: S4UL Threshold Value Tables
Appendix C: YALPAG Overview Flowchart
Appendix D: Notes on Limitations & Contamination Guidelines

Revision	Date	Prepared By	Signed
Final	May 2026	M Atkins *Senior Geotechnical Engineer*	[redacted]
		Checked By	
		A Cutts *Principal Engineering Geologist*	[redacted]
		Approved By	
		R Woods *Managing Director*	[redacted]

1 OBJECTIVES & PRINCIPLES OF REMEDIATION STATEMENT

Solmek have been commissioned by JC Consulting to prepare a Remediation Statement for a parcel of land at the former Rensaw House Methodist Church, 99 Plymouth Grove, Manchester, M13 9HX. A site location plan is presented in Appendix A, Figure 1.

The proposed development is expected to comprise new student residential accommodation with peripheral soft landscaping (Appendix A, Figure 3).

The following reports have already been issued in respect of the site

- *Ground and Project Consultants Ltd, Phase 1 Desk Study (100948, February 2024)*
- *Solmek Phase 2 Site Investigation Report (NE-26-004 – Rev 1, March 2026)*
- *Solmek Post Demolition Contamination Assessment (NE-26-004/PD, May 2026)*
- *Solmek Ground Gas Risk Assessment (NE-26-004/REM, May 2026)*

This Remediation Statement outlines the objectives of the remediation works that are required to render the site suitable for the proposed development and its immediate surroundings, which mainly comprises residential buildings and recreational grounds.

Site works shall be supervised periodically by a suitably qualified engineer. Agreed dates and milestones for site visits can be agreed between Solmek and the contractor following approval of the Remediation Statement from the Local Authority.

2 REVIEW OF SITE HISTORY AND INVESTIGATION WORKS

2.1 Previous and Current Land Use

A brief summary of the historical mapping indicates that the site has undergone only limited redevelopment over time. Since approximately 1891, the site has predominantly been occupied by a church, with only minor alterations to the site layout recorded.

The surrounding area has largely remained residential in character since the 19th century. Historical off-site land uses within the wider area have included a sawmill, engineering works, dye works, garages, and electricity substations. In addition, the Manchester Royal Infirmary, located in proximity to the site, is shown on OS mapping from 1922 onwards and has since been subject to substantial expansion.

2.2 Ground Conditions (Previous Investigations)

In January 2026, Solmek undertook five small percussive boreholes (BH01 to BH05 inclusive) drilled to a maximum depth of 6.00mbgl, two cable percussive boreholes (CP01 and CP02) drilling to a maximum depth of 15.45mbgl with ground gas/water monitoring wells installed into BH02, BH05 and CP01.

In March 2026, three machine excavated trial pits (TP01 to TP03 inclusive) were excavated to a maximum depth of 1.40mbgl within the former building footprint as part of a post-demolition contamination assessment.

Locations of the boreholes and trial pits are presented in Appendix A, Figure 2.

2.2.1 Made Ground

Made ground to the west of the site in the former car park (CP01, CP02 and BH01) generally comprised tarmac to 0.05mbgl with BH01 and CP02 underlain by slightly gravelly sand up to 0.35mbgl (BH01) and slightly sandy slightly gravelly clay to a depth of 0.60mbgl with CP01 underlain by sandy (becoming slightly clayey) gravel to 1.50mbgl and clay to 2.50mbgl.

To the east of the site with in BH's 02 to 05, made ground consisted of slightly clayey sandy slightly gravelly topsoil to a maximum depth of 0.70mbgl (BH05) overlying firm slightly sandy slightly gravelly clay in BH02 and BH05 up to 1.10mbgl (BH02) and slightly clayey sandy gravel in BH03 and BH04 to a maximum depth of 1.30mbgl (BH04).

Made ground within the former building footprint comprised locally silty slightly sandy slightly gravelly clay to depths of between 0.20mbgl and 0.30mbgl.

The gravel constituents variably consisted of brick, sandstone, coal, siltstone, slate and mudstone with brick cobbles noted across the site.

2.2.2 Natural Deposits

Where encountered, natural deposits generally comprised firm to very stiff slightly sandy slightly gravelly high strength clay of intermediate to low plasticity to a maximum depth of 15.20mbgl (CP02).

A band of medium dense sand was recorded in CP01 between 9.30mbgl and 9.50mbgl with dense gravelly sand in CP02 from 15.20mbgl to 15.45mbgl, this was inferred weathered sandstone, however, bedrock was not proven via rotary drilling methods

Within the trial pits very stiff to stiff slightly silty slightly sandy slightly gravelly clay was encountered to a maximum termination depth of 1.40mbg

.

2.2.4 Groundwater

Groundwater was encountered locally within CP01 at depth of 9.50mbgl as a slight seepage at the base of the sand deposit during the intrusive investigation.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

2.3 Historical Contamination Results

2.3.1 *Solmek (NE-26-004/rev 1, Feb 2026 & NE-26-004/PD, May 2026)*

To establish if the levels of contaminants present on site may pose a risk to the health of the future users of the site contamination testing was compared to a series of LQM S4UL and C4SL thresholds based on a residential without home grown produce land use.

Five samples of made ground were subject to chemical testing at depths of between 0.05mbgl and 1.00mbgl.

The levels of contaminants across the site are generally low with exceedances recorded in all five samples tested, as summarised below:

- **CP01 (0.05-0.35m – MG Gravel)** dibenzo(ah)anthracene
- **CP02 (0.25-0.60m – MG Sand)** Naphthalene, benzo(b)fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene and Total PAH.
- **BH02 (0.10-0.20m – MG Topsoil)** benzo(b)fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(ah)anthracene and Total PAH.
- **BH04 (0.70-1.00m – MG Gravel)** Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene and Total PAH
- **BH05 (0.30-0.50m – MG Topsoil)** Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene, benzo(b)fluoranthene and Total PAH

No asbestos fibres were detected in the three samples subject to testing.

Three further samples were subject to chemical testing post demolition from the trial pits. No raised elevations were recorded based on the samples tested.

2.3.2 *Solmek Ground Gas Risk Assessment (Solmek (NE-26-004/GAS, May 2026)*

Gas Monitoring was undertaken by Solmek over six visits between January 2026 and April 2026. The atmospheric pressure ranged between 981 and 1024 millibars during the surveys.

Carbon dioxide concentrations were recorded between 0.00% and 0.70% volume, and oxygen levels were between 19.00% and 20.30%. Methane was not detected in any of the boreholes during the survey and very low flow rates were recorded.

Given the above, the site was classified as **Characteristic Situation (CS) 1**.

The site is not in a Radon Affected Area, as less than 1% of properties are estimated to be at or above the Action Level, no radon protection measures are therefore necessary for new buildings or extensions on the site.

2.4 Historical Contamination Recommendations

The Solmek reporting recommended that garden areas be provided with a clean cover system of imported topsoil (150mm) over either natural ground or clean imported subsoil (300mm), for a total clean cover system thickness of 0.45m.

In terms of building materials, the report precluded the use of PE, PVC and copper pipes, whilst DS-1 AC-1s concrete is required.

It was recommended that during any further construction activities, if any zones of odorous, brightly coloured or suspected contaminated ground are encountered then work should cease in that area until the material has been tested. The results of the tests will determine whether or not remediation will be required.

3 REMEDIATION STRATEGY

3.1 Objectives

Based on the Site Investigation Reports, the following remediation targets have been determined:

- Provide hard cover to the majority of the site, including building footprints, roads, parking and paving thus removing pathways between potential sources of contamination (made ground) and receptors (future users of the site and construction workers).
- Provide suitable ground conditions (clean cover system) in proposed soft landscaped areas suitable for plant growth.
- To resolve contamination issues in order to protect those receptors identified to be at risk, and thereby render the site suitable for the proposed development.
- Safe strip, excavation and stockpiling of potentially contaminated materials. This material will then either be safely encapsulated beneath hardstanding (i.e. building footprints, roads, parking areas) or removed from site to an appropriate waste facility. This would protect those receptors identified to be at risk (namely construction workers and future site users) thus rendering the site safe during the proposed construction and development phase.
- Strip the site to appropriate formation levels for construction.
- Provide guidance on how the remediation targets will be checked and validated.

A Remediation Statement comprising excavation, disposal, and inclusion of clean soils is to be adopted. The Site Investigation Report contains information that can be used to gauge the typical quantities to be addressed.

3.2 General

The purpose of the remediation works is to:

- To reduce liabilities associated with ground conditions by reclaiming the site within a framework of risk assessment.
- To facilitate successful redevelopment of the site for development within the existing constraints.
- To ensure that the public and residents around the site are not exposed to contamination.
- To make the site safe for future occupiers.
- To enable the site ground quality to comply with UK environmental legislation.

- To provide a sustainable and cost-effective solution.

3.3 Proposed Remediation Strategy

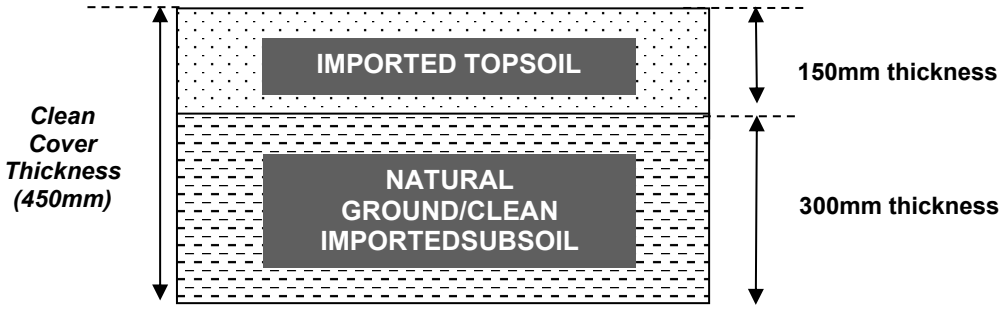
The above objectives will be achieved by undertaking the following remediation works prior to development taking place:

3.3.1 Proposed Hard Landscaped Areas

- Areas beneath proposed footpaths, parking zones or other areas of hard landscape, including the building footprints, will require little or no remediation other than removal of materials to satisfy appropriate formation levels for construction. This provides a barrier to potential underlying contamination within the made ground and protects groundwater from surface infiltration.

3.3.2 Peripheral Soft Landscaped (if proposed)

- It is proposed to strip the made ground from soft landscaped areas to a depth of 0.45m. The arisings will either be encapsulated under permanent hardstanding areas or building footprints or removed from site thus reducing all risk from potential contamination. It is proposed to import topsoil and subsoil (if necessary) onto the site from a reputable source.
- The clean cover system will comprise a 450mm thick layer of 150mm of imported topsoil over 300mm of natural ground or clean imported subsoil.
- Imported topsoil, if used, should be BS 3882:2015 compliant and 'suitable for their intended purpose'.
- Imported subsoil, if used, should be BS 8601:2013 compliant in terms of providing a suitable environment to support plant growth.
- All soils will also need to be tested for contaminants that are considered to pose a risk to human health (Appendix B) to ensure that they are suitable for their intended use.
- The clean cover system must be installed and verified in accordance with the Local Authority Guidelines 'Verification Requirements for Cover Systems, Technical Guidance for developers, Landowners and Consultants' (Yorkshire and Lincolnshire Pollution Advisory Group Version 4.1 – June 2021).
- It is recommended to undertake all validation testing (topsoil and subsoil) **prior to emplacement** in the garden areas, to reduce the risk of having to re-excavate any contaminated soils.
- Once the soils have been validated, they can be emplaced and will then require the thickness of the soils to be validated (0.30m topsoil over 0.30m subsoil).
- Prior to installing the clean cover system, the site operatives must mitigate against potentially contaminating clean materials with soil and dust generated from underlying contaminated ground or any other stockpiled materials onsite.



3.3.3 Treating Unknown Contamination

- During any construction activities, should any zones of odorous, brightly coloured or suspected contaminated ground be encountered then work should cease immediately in that area until Solmek have been contacted and visited site. Further contamination testing may be required. The results of the tests will determine whether or not material may remain on site or be disposed of in a safe manner. Should any contamination be encountered, that will require an altered remediation strategy, the local authority shall be notified and this report shall be revised accordingly.

4 GENERAL REMEDIAL WORKS

4.1 Soil Import Methodology

The importation of soils will be undertaken as part of the contract for the preparatory and remedial works, in which case imported soils will be stockpiled in a location agreed with Solmek and the Client. This location should be quarantined, with the imported material sited upon visqueen and covered if necessary, away from potential sources of on-site contamination. Alternatively, the developer may choose to import soil at a later stage in the development. Sources, types of suitable material and the moisture content at which they may be placed and compacted shall be approved by Solmek.

Consideration should be given to the YALPAG Guidance *"Verification Requirements for Cover Systems",* and in particular to the Overview Flowchart provided within (Appendix C of this report). Any prospective suppliers of soil should first be questioned in line with Appendix 1b of the YALPAG document, "Questions to Ask Your Soil Supplier Relating to Soil Quality". Confirming that the soil supplier is aware of the expected soil quality is mandatory in order to ensure the imported soil is of sufficient quality.

In addition, upon delivery a visual inspection should be undertaken of the soil, with photographs taken for records.

The visual inspection should ensure that the material is free from deleterious materials. Any imported material shall NOT contain the following:

- Colliery shales.
- Ironstone shales.
- Materials containing sulphates.
- Any Japanese Knotweed fragments (rhizomes, leaves, stems etc).
- Materials susceptible to frost damage, weathering and mechanical damage.
- Deleterious made ground materials such as bricks, ash, tarmac, concrete and glass.

Fill areas shall be built up evenly over the full area of each phase, unless the Contract requires otherwise, and sufficient camber shall be maintained at all times to enable surface water to drain from them. The containment or disposal of surface water during the construction period shall be the Contractor's responsibility. The Contractor shall ensure that excavations and areas to be filled are free from organic material, loose soil, rubbish and standing water.

Material in fill areas which has deteriorated due to the ingress of surface water or the trafficking of the Contractor's plant shall be removed and replaced.

Following placement, the clean cover layer needs to be verified by a Solmek Engineer to ensure that the cover layer is formed from appropriate materials and is of sufficient thickness.

4.2 Excavation of Potentially Contaminated Material

Soils that are to be excavated in order to achieve finished levels and/or are suspected of being contaminated shall be excavated and placed in contained and covered stockpiles prior to being removed from site.

Material taken off site must be subject to WAC testing either by Solmek or by the appropriate waste disposal company. The disposal contractor can advise if any further tests are required depending on the volume of material to be exported to landfill.

The Contractor shall provide appropriate measures to prevent collapse of excavations and de-watering apparatus to prevent water accumulation within excavations. All excavations left open shall be securely fenced. Any potentially contaminated water encountered during the works shall be stored appropriately to prevent it being discharged from the site, and chemical analysis undertaken. The contractor should make proper arrangements to treat or dispose of the water once the chemical analysis results are available.

4.3 Backfilling of Excavations

Once the above works are complete, the contractor shall backfill all excavations. Backfilling shall be undertaken in a controlled manner in accordance with an engineering specification appropriate to the type of material to be used.

4.4 Short-Term Health and Safety Implications

There will be a short period whereby contaminated soils may be exposed or moved on site. There is a risk at this time of dust exposure to workers and the public, and secondly, of dermal contact to workers. To mitigate any risks of dust exposure, consideration should be given to BRE: *The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance.* With respect to minimising risks to construction staff, all works should adhere to HSE guidance: *Protection of Workers and the General Public During the Development of Contaminated Land*. In addition, adequate site safety measures should be taken within the Construction (Design & Management) Regulations 2015 safety regime on site, as applicable, whilst detailed method statements should be prepared and adhered to for all works.

5 VALIDATION TESTING AND REPORTING

On satisfactory completion of the works Solmek will provide a Validation Report to the Client. The Validation Report will provide certification that the remediation works have been carried out in accordance with this Remediation Statement. The Validation Report will include a summary of the remediation works undertaken, laboratory test results, drawings supplied by the Contractor's surveyor, and details of any other relevant matters.

Appendix 1A of Local Authority Guidelines 'Verification Requirements for Cover Systems, Technical Guidance for developers, Landowners and Consultants' (Yorkshire and Lincolnshire Pollution Advisory Council Version 4.1 – June 2021) outlines that for greenfield/manufactured soils, a minimum of three samples, or 1 per 250m^3, whichever is greater should be tested. For brownfield/screened soils, a minimum of six samples or 1 per 100m^3 should be tested.

It is understood that imported materials are likely to be used, however the volumes of material to be used is not known by Solmek. The source and volumes of material utilised will be outlined in the Phase 4 Validation Report, which will provide testing results in line with the requisite ratio of 1 sample per 100m^3.

The Validation Report(s) issued on completion of works will cover the following elements:

- Volumes of materials excavated from the remediation area.
- Validation testing in accordance with the Local Authority Guidelines '*Verification Requirements for Cover Systems, Technical Guidance for developers, Landowners and Consultants'* (Yorkshire and Lincolnshire Pollution Advisory Council Version 4.1 – June 2021). It is recommended to do all validation testing **prior** to the emplacement of topsoil in soft landscaped areas.
- Clean cover thickness with photographic evidence.
- Testing quantities will depend on the imported volume of material as noted above. Should the topsoil and subsoil not have already been validated at this point, samples will be retrieved during the clean cover thickness verification for testing.
- Evidence of waste disposal records.
- Confirmation of haulier and disposal facilities.
- Records of environmental issues.
- Diary/log sheets of Part time supervision/visits by suitably qualified Engineer.

The contractor will be responsible for providing the necessary site information for use in the Validation Report. This will include volumes of materials, waste disposal records, surveys for base digs etc.

5.1 Soils Analysis

Based on the findings presented within the Site Investigation Report; as part of the validation works the clean cover system materials will undergo the following suite of testing:

- Inorganic determinants (metals, semi-metals and non-metals)
- TPH CWG
- Speciated PAH
- Phenol
- pH
- Organic Matter Content
- Asbestos and Asbestos Quantification

Soil test results will then be compared against a series of LQM/CIEH Suitable 4 Use Levels (S4UL). Results from the soft landscaped areas will be compared to thresholds based on a residential land use without home grown produce. The latest LQM/CIEH S4UL were published in December 2014. In the absence of LQM/CIEH S4UL, Category 4 Screening Levels (March 2014), EA CLEA Thresholds (from Version 1.06, May 2011) and EA Lower Tier Threshold values shall be adopted.

The S4UL threshold value tables are shown in Appendix B.

SOLMEK

Appendix A



SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Site Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

May 2026

DRG Number

Figure 1

Scale

1:5000 @ A4 [DO NOT SCALE]

Legend Key

Project Bounds - Project Bounds



SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Trial Pit Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

May 2026

DRG Number

Figure 2

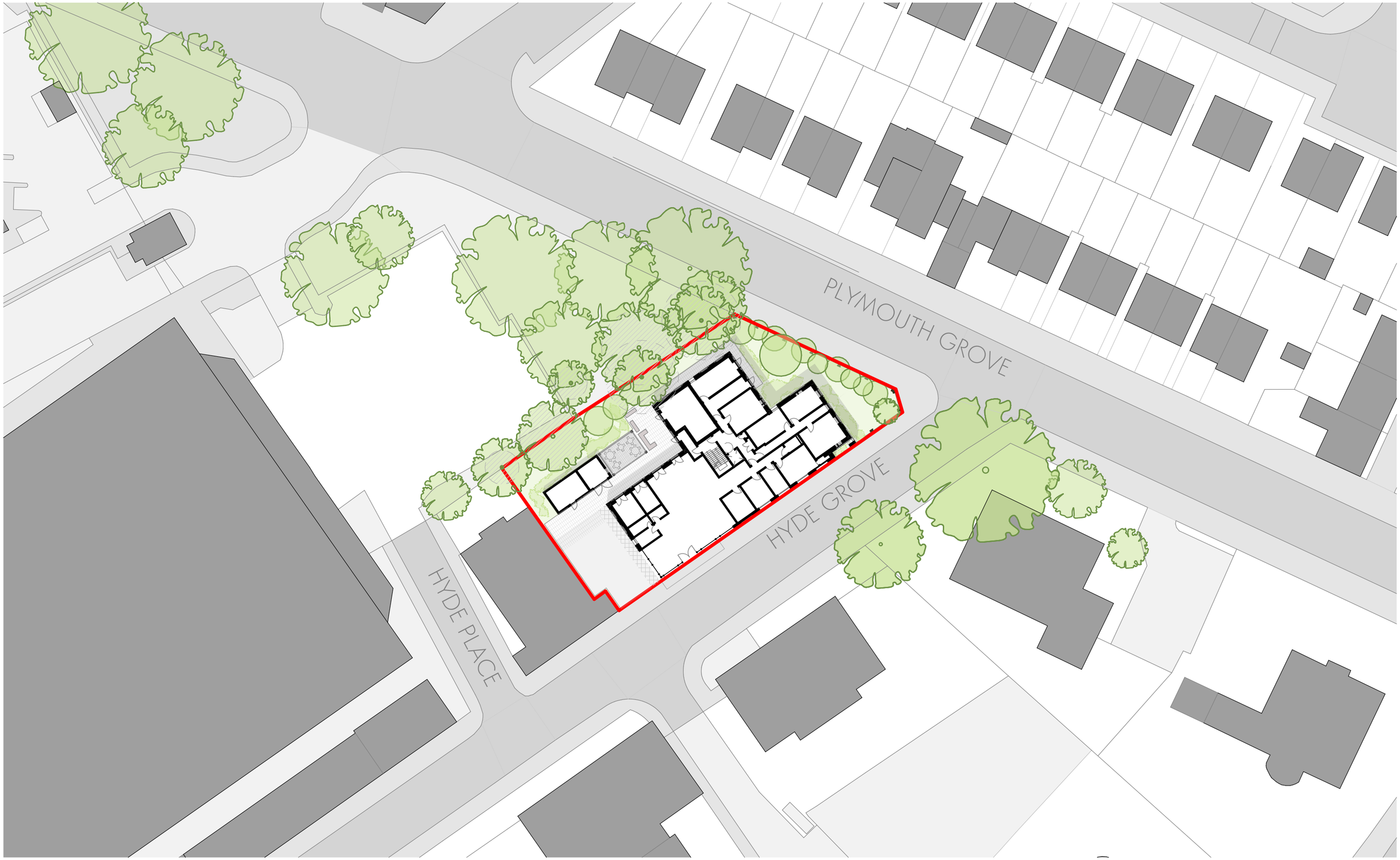
Scale

1:500 @ A4 [DO NOT SCALE]

Legend Key

Locations By Type - TP

Project Bounds - Project Bounds



This drawing is the property of GWP Architecture. Copyright is reserved by them and the drawing is issued on the condition that it is not copied, reproduced, retained, or disclosed to any unauthorised person, either wholly or in part, without the consent in writing of GWP Architecture.

All drawings and specifications should be read in conjunction with the project health and safety plan, any possible conflicts should be presented to the Planning Coordinator.

All work to be carried out in accordance with current Building Regulations.

Contractors must verify all dimensions at the job before commencing any work or making shop drawings.

Written dimensions should be taken. Do not scale off drawing. Do not take digital dimensions from this drawing.

Any discrepancies to be reported to the Architect.

0 10m 20

Scale - 1:500 @A3

N

Rev	Date	Comment	Dr	Ch
P05	07.11.24	Updated EA Studio provision	JW	TA
P04	10.09.24	Updated as Studio scheme	TA	RT
P03	09.08.24	Updated as planning comment	TA	RT
P02	02.05.24	Updated as planning comment	TA	RT
P01	28.03.24	First Issue	TA	RT

J:\Volumes\Data\CAD\(544)2337 Renshaw House, Manchester\A_Architects (GWP)\Model\Renshaw House, Manchester - (544)2337-GWP-01-XX-M3-A-RenshawHouse-StudioReducedHeightOption2-P11.pln

GWP Job Reference (544)2337

Job Title Renshaw House, Hyde

Client Mia James Construction

Proposed Site Plan

Name	(544)2337-GWP-01-00-D-A-(PA)-0008		
Scale	1:200@A3	Revision	P05
Drawn/Checked	TA / RT	First Issue	28.03.24
Drawing Status	A - Approval		

CHARTERED ARCHITECTS
INTERIOR DESIGNERS
SPACE PLANNERS
PROJECT MANAGERS
LANDSCAPE ARCHITECTS

Bracken House, Lidgett Lane. Leeds LS8 1PQ
+44(0)113 266 6044 (t) | +44(0)113 268 1859 (f)
architecture@gwp-arch.com | www.gwp-arch.com

Appendix B

TABLE 1: SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS

Determinand	Units	Number of Samples above Level of Detection	Minimum Level	Maximum Level	Residential Without HGP Value	Number of Results Exceeding Threshold Value
Metals						
Beryllium	mg/kg				1.7	
Cadmium	mg/kg				85	
Chromium III	mg/kg				910	
Copper	mg/kg				7100	
Lead	mg/kg				310*	
Inorganic Mercury	mg/kg				56	
Nickel	mg/kg				180	
Zinc	mg/kg				40000	
Semi metals and non metals						
Arsenic	mg/kg				40	
Boron	mg/kg				11000	
Selenium	mg/kg				430	
Vanadium	mg/kg				1200	
Inorganic chemicals						
Cyanide (total)	mg/kg				73.8**	
W.S. Sulphate	mg/l				2000^	
Other						
pH	pH				<5.5^	

* *Category 4 Screening Levels, March 2014*
** *CLEA Software Version 1.06 (pH7 and 1%SOM)*
^ *EA Threshold Values*
HGP Home Grown Produce

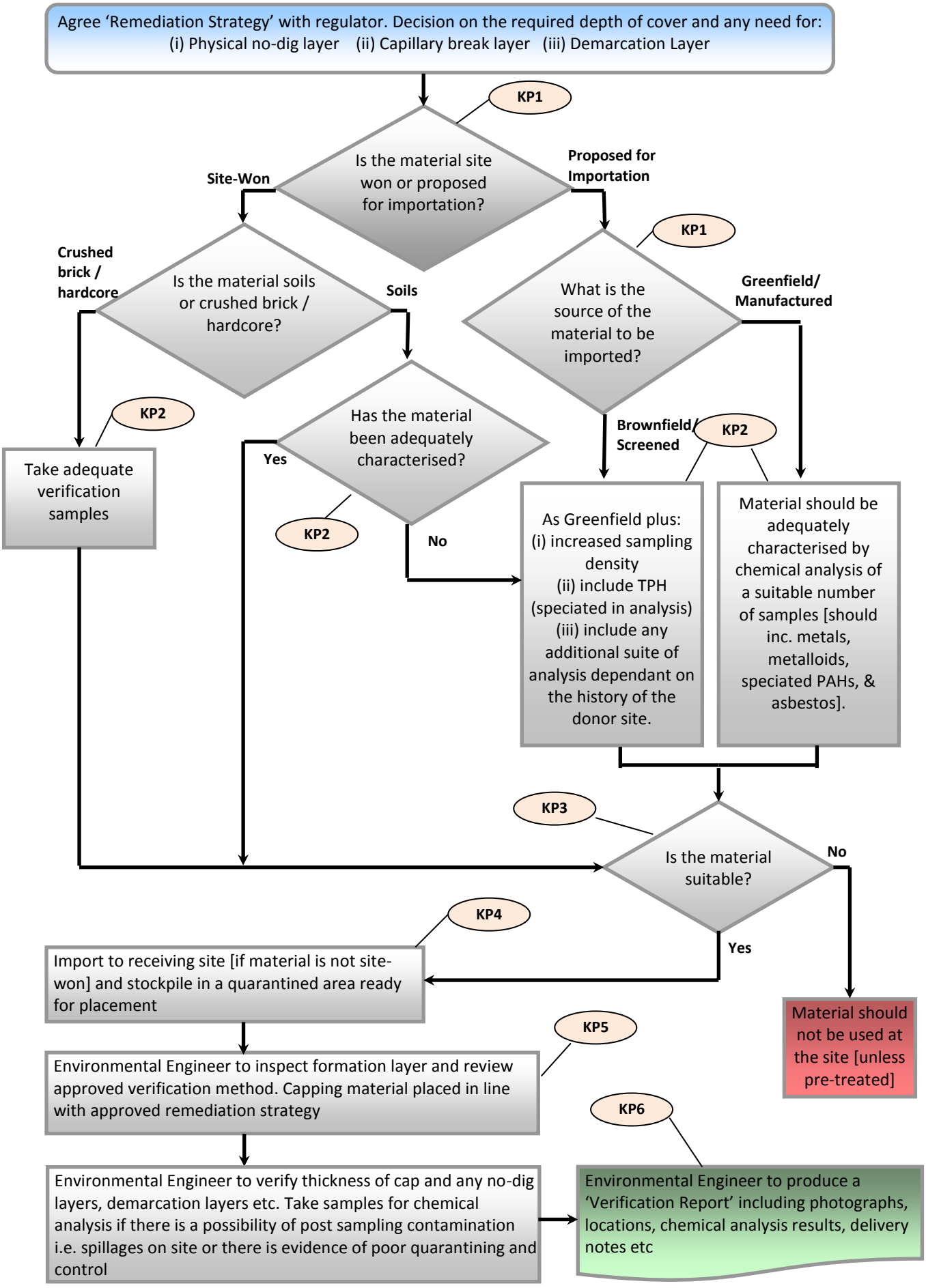
TABLE 2: SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS

Determinand	Units	Number of Samples above LOD	Minimum Level	Maximum Level	S4UL 1% SOM	S4UL 2.5% SOM	S4UL 6% SOM	Number of Results Exceeding Threshold Value
TPH Aliphatic Fractions								
C5-6	mg/kg				42	78	160	
C6-8	mg/kg				100	230	530	
C8-10	mg/kg				27	65	150	
C10-12	mg/kg				130	330	770	
C12-16	mg/kg				1100	2400	4400	
C16-35	mg/kg				65000	92000	110000	
TPH Aromatic Fractions								
C5-7 (Benzene)	mg/kg				370	690	1400	
C7-8 (Toluene)	mg/kg				860	1800	3900	
C8-10	mg/kg				47	110	270	
C10-12	mg/kg				250	590	1200	
C12-16	mg/kg				1800	2300	2500	
C16-21	mg/kg				1900	1900	1900	
C21-35	mg/kg				1900	1900	1900	
Speciated PAH								
Naphthalene	mg/kg				2.3	5.6	13	
Acenaphthylene	mg/kg				2900	4600	6000	
Acenaphthene	mg/kg				3000	4700	6000	
Fluorene	mg/kg				2800	3800	4500	
Phenanthrene	mg/kg				1300	1500	1500	
Anthracene	mg/kg				31000	35000	37000	
Fluoranthene	mg/kg				1500	1600	1600	
Pyrene	mg/kg				3700	3800	3800	
Benz' (a)anth' ene	mg/kg				11	14	15	
Chrysene	mg/kg				30	31	32	
Benz' (b)fluor' ene	mg/kg				3.9	4.0	4.0	
Benz' (k)fluor' ene	mg/kg				110	110	110	
Benz' (a)pyrene	mg/kg				3.2	3.2	3.2	
Benz (ghi)per' ene	mg/kg				360	360	360	
Diben(ah)anth'ene	mg/kg				0.31	0.32	0.32	
Id' (123cd)pyrene	mg/kg				45	46	46	
Total PAH	mg/kg				50*	50*	50*	
Phenol	mg/kg				750	1300	2300	

* *EA Threshold Values*

Appendix C

Overview Flowchart



Appendix D

♣Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2026)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2011 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.

SOLMEK NOTES ON CONTAMINATION GUIDANCE (REF: VERSION 1/2022)

UK BACKGROUND

Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to *"identify and remove unacceptable risks to human health and the environment" and* to *"seek to ensure that contaminated land is made suitable for its current use".*

Part 2A uses a risk based approach to defining contaminated land whereby the "risk" is interpreted as *"the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land"* and by *"the scale and seriousness of such harm or pollution if it did occur".*

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *"for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters."*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include *"land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health."*

Categories 3 and 4 *"encompass land which is not capable of being determined on such grounds".*

PRELIMINARY CONCEPTUAL MODEL

Preliminary Conceptual Models are undertaken in accordance with CIRIA C552. The Preliminary Conceptual Model assesses the consequence and the likelihood of a risk being realised to provide a risk classification, using the tables detailed below.

CONSEQUENCE OF RISK BEING REALISED (Based on C552 CIRIA, 2001)

Classification	Definition	Example
Severe	Short-term (acute) risk to human health, the environment, an element of the development or other aspect with is likely to result in *significant harm*, damage or both.	High concentrations of cyanide on the surface of an informal recreational area. Major spills of contaminants from site into controlled water. High concentrations of explosive gas in the subsurface environment that have a clear unobstructed pathway into buildings.
Moderate	Chronic damage to human health, a plausible chance that an event will occur, although the timeline is not immediate to be in the short-term.	Appreciable concentration of contamination that over the longer-term will cause significant harm i.e. high lead concentration in topsoil. Shallow mine workings that are potentially unstable but may remain in a satisfactory or stable conditions for a number of years.
Mild	Low level pollution of non-sensitive water, a feasible hazardous scenario although the timeline of such occurring can probably be considered in 10's of years.	The effect of high sulphate concentrations on structural concrete. Pollution of non-classified groundwater.
Minor	Harm, although not necessarily significant to human health, or with respect to other aspects of the development, which are considered implausible in terms of occurrence, or will have little consequential impact.	The presence of contaminants at such low concentrations that protective equipment is required during site works. Any damage to structures is minimal and will not be structural in characteristics.

PROBABILITY OF RISK BEING REALISED (C552 CIRIA, 2001)

Classification	Definition
High Likelihood	There is a viable pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence that the receptor has been harmed or polluted.
Likely	There is a viable pollutant linkage and all elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a viable pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a viable pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

RISK CLASSIFICATION MATRIX (C552 CIRIA, 2001)

Risk = Probability x Consequence		**Consequence**			
		Severe	**Moderate**	**Mild**	**Minor**
Probability	**High likelihood**	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

HUMAN RECEPTORS

Human exposure to contaminants present in soils can occur via several pathways. Direct exposure pathways include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatised compounds, and inadvertent soil ingestion (or deliberate soil ingestion in the case of some children). Other indirect pathways include human ingestion of plants grown in contaminated soil or contaminated ground or surface water. Contaminants associated with wind blown dust can affect humans on surrounding sites.

VEGETATION

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, lead, nickel, and zinc.

To establish if the levels of contaminants present on a site may pose a risk to vegetation the results of the contamination testing are compared to a series of threshold values published in 'Code of Good Agricultural Practice for the Protection of Soil'.

GROUNDWATER AND SURFACE WATER RECEPTORS

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology. Surface watercourses may also accumulate contamination as contaminated sediments are deposited within the water body.

Where the site investigated overlies major/principal aquifers (and in some cases minor/secondary aquifers depending on certain conditions), groundwater Source Protection Zones and areas in close proximity to groundwater abstractions, contamination test results have been compared with the Water Supply (Water Quality) Regulations 1989 and The Water Supply (Water Quality) Regulations 2000.

Should a surface water receptor, such as a fresh water environment (river, canal, stream, lake etc), or marine environment be considered sensitive in relation to a site, then test results are compared with DEFRA & SEPA Environmental Quality Standards (2004). Many of the Environmental Quality Standards are hardness ($CaCO_3$) depended. Where no hardness values are available, Solmek assume conservative values (of between 0 and 50mg/l).

In the absence of vulnerable ground and surface water environments, Solmek may compare any test results with the Environment Agency Leachate Quality Threshold Values.

DETAILED QUANTITATIVE RISK ASSESSMENT (DQRA)

In line with Environment Agency's guidance document Environment Agency *Land Contamination Risk Management*, which replaced the now-withdrawn *Contaminated Land Report 11 – Model Procedures for the Management of Land Contamination (2004)*, a DQRA for groundwater/human health may be required following a Phase 2 investigation and before the preparation of a Phase 3 Remediation Strategy. For human health DQRA, a site specific assessment criteria is undertaken using CLEA Software Version 1.06. For groundwater DQRA, the Environment Agency Remedial Targets Worksheet Version 3.1 is used.

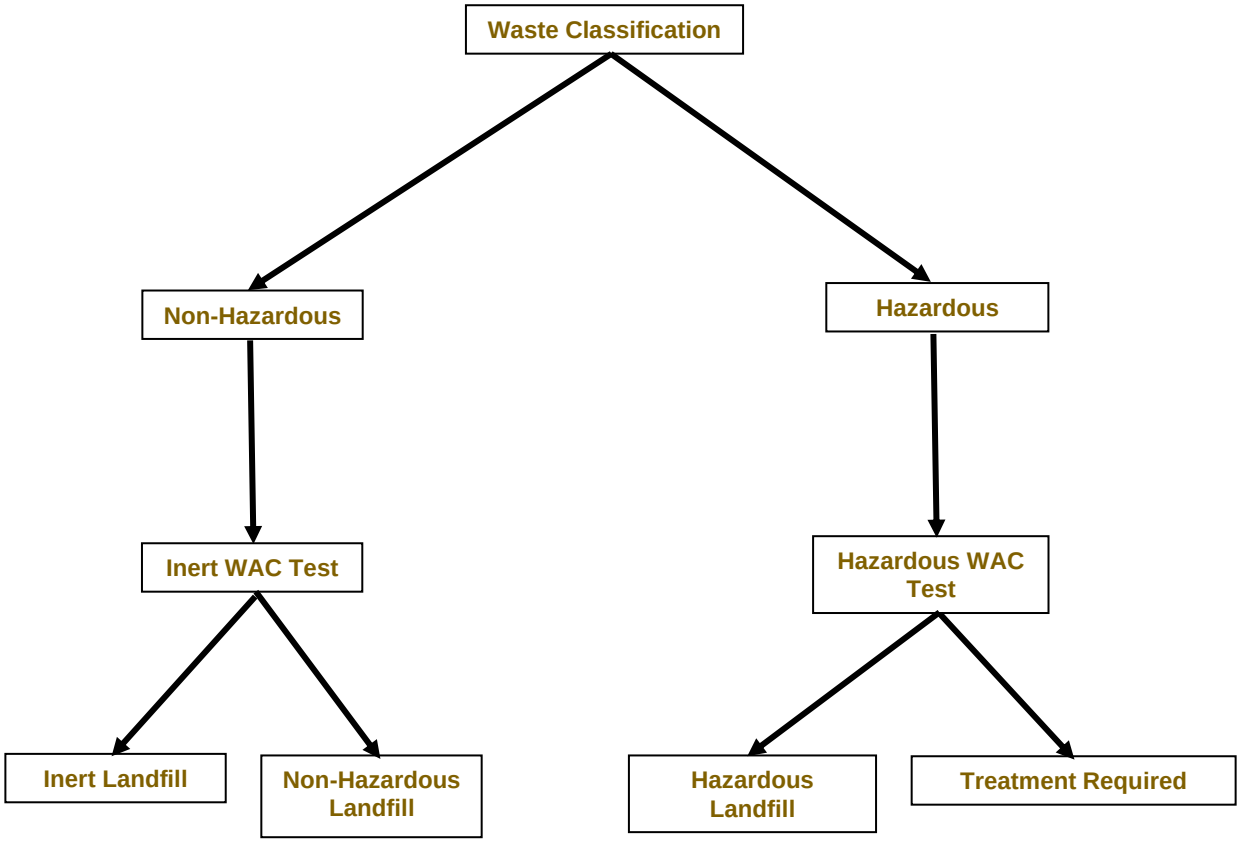
WASTE CLASSIFICATION AND WASTE ACCEPTANCE CRITERIA

During the site strip and construction activities, material may be required to be removed from site. Any such material would require classification, in line with Environment Agency Technical Guidance *Waste Classification: Guidance on the classification and assessment of waste (2015)*. This would classify the material as either Non-Hazardous or Hazardous Waste.

Once the material has been classified, determining the suitable landfill for disposal is governed by landfill directive Waste Acceptance Criteria (WAC) testing, with landfills categorized as Inert Waste, Stable Non-Reactive Hazardous Waste and Hazardous Waste. The WAC testing relates to materials that are to be exported from a site/development to landfill, and do not directly relate to human health specifically. The testing results are generally presented as certificates which can be used by site owners/contractors etc, which should be presented to the accepting waste facility or waste contractor.

If waste classification and/or WAC testing are not undertaken, material taken off site may be subject to WAC testing by the appropriate waste disposal company. The decision on whether or not to accept waste, or whether further testing is required, is at the discretion of the waste disposal company.

The below flow chart provides further information on the waste classification process.



CONSTRUCTION MATERIALS

Materials at risk from possible soil contaminants include inorganic matrices such as cement and concrete and also organic material such as plastics and rubbers. Acid ground conditions and high levels of sulphates can accelerate the corrosion of building materials. Where pH and soluble sulphate analysis has been undertaken, Solmek compare the test results with the guidelines presented within BRE Special Digest 1, 2005 (3rd Edition) 'Concrete in Aggressive Ground'. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication "Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites" (January 2011). A Brownfield Site is defined in the document as "Land or premises that have not previously been used or developed that may be vacant or derelict". It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer. The table below outlines the pipe material selection threshold concentrations.

	Pipe Material (Threshold concentrations in mg/kg)					
Parameter group	**PE**	**PVC**	**Barrier pipe (PE-AL-PE)**	**Wrapped Steel**	**Wrapped Ductile Iron**	**Copper**
Extended VOC suite by purge and trap or head space and GC-MS with TIC	0.5	0.125	Pass	Pass	Pass	Pass
+ BTEX + MTBE	0.1	0.03	Pass	Pass	Pass	Pass
SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C5-C10)	2	1.4	Pass	Pass	Pass	Pass
+ Phenols	2	0.4	Pass	Pass	Pass	Pass
+ Cresols and chlorinated phenols	2	0.04	Pass	Pass	Pass	Pass
Mineral oil C11-C20	10	Pass	Pass	Pass	Pass	Pass
Mineral oil C21-C40	500	Pass	Pass	Pass	Pass	Pass
Corrosive (Conductivity, Redox and pH)	Pass	Pass	Pass	Corrosive if pH <7 and conductivity >400µS/cm	Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm	Corrosive if pH <5 or >8 and Eh positive
Specific suite identified as relevant following site investigation						
Ethers	0.5	1	Pass	Pass	Pass	Pass
Nitrobenzene	0.5	0.4	Pass	Pass	Pass	Pass
Ketones	0.5	0.02	Pass	Pass	Pass	Pass
Aldehydes	0.5	0.02	Pass	Pass	Pass	Pass
Amines	Fail	Pass	Pass	Pass	Pass	Pass

REQUIREMENTS OF PARTIES WITHIN THE DEVELOPMENT PROCESS

Interested parties involved in the development process may use the data in different ways and there may be varying views and interpretation of the factual data. Local Authority staff may have a view on contamination and human health and the wider environment. The Environment Agency are concerned principally with the protection of Controlled waters. Building insurers, funders and purchasers may be primarily concerned with issues of potential commercial blight. Purchasers are also not always fully informed, and perceptions on issues associated with risk can affect the decision to purchase. Developers and construction organisations will focus on financial aspects of dealing with the contamination in the context of the development and construction programme.

RISKS & LIABILITIES FROM CONTAMINATION

In simple terms, risks associated with contamination may be considered in terms of 1) statutory risks and 2) development related risks. If contamination is severe or forms a potential hazard based on its potential to affect groundwater, surface water or human health, a statutory risk may be present, and as such, if the risk is not reduced, criminal proceedings may be instigated by a government body or local authority.

If the contamination is less severe or not considered to be mobile, it may be considered a commercial liability which could, in theory remain untreated, but which may at a later date affect the value of the property, or, with changing legislation, become a statutory risk. Commercial liabilities could give rise to civil proceedings by third parties if there are grounds for action.