WML CONSULTING
Civil, Structural and Geotechnical Engineers

Remediation Strategy

For a site at

Amberley Drive, Wythenshawe

Undertaken for

John Southworth Builders Ltd

Report:- 12765G-WML-XX-ZZ RP-G-0003
October 2026

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Client:	**John Southworth Builders Ltd**
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1.0 INTRODUCTION

Appointment

1.1 WML Consulting has been commissioned by John Southworth Builders Ltd to undertake a Remediation Strategy for a site referred to as land off Amberley Drive, Wythenshawe.

Proposed Development

1.2 The proposed development will comprise the construction of 8no low-rise residential properties with associated access roads, external areas of hardstanding for parking together with private gardens.

1.3 The current development proposals are reproduced in Appendix 01.

Background

1.4 WML were initially commissioned to undertake a Phase 1 Desk Study and Phase 2 Investigation and Assessment. These culminated in the following reports.

- Phase 1 Desk Study and Preliminary Geoenvironmental Assessment Report, reference 8538G-WML-XX -RP-G-0001A, updated March 2025.
- Phase 2 Geo-environmental Investigation and Assessment, reference 8538G-WML-XX-ZZ-RP-G-0002A, updated March 2025.
- Addendum Investigations, reference 12765G/TPB/SCS, dated July 2026.

1.5 It is understood that the reports will be presented to Manchester City Council Local Authority Planning Division in support of the planning application 141661/FO/2024.

1.6 This report has been compiled in consideration of the need for remedial measures to be outlined and agreed as a pre-development requirement.

1.7 The findings of the Phase 1 and Phase 2 reports are summarised in the following sections and an updated ground gas risk assessment has also been included.

2.0 SITE LOCATION AND DESCRIPTION

Site Location

2.1 The site comprises land at Amberley Drive, Wythenshawe. It is centred on approximate Ordnance Survey National Grid Reference 381162E, 387950N with an indicative postcode of M23 2RW.

2.2 The proposed development site is bounded to the north and west by residential housing on Greenbrow Road and Amberley Drive and to the east by Mill Brook.

Site Description

2.3 The site is undeveloped and predominantly surfaced with managed grass in use as a public open space.

2.4 The eastern section of the site comprise mature deciduous trees and very dense vegetation along the line of Mill Brook, which extends roughly north-west to south-east at the site boundary.

2.5 The southern area of the site is openly accessible from Amberley Drive, which forms the western site boundary.

2.6 The surrounding land is mainly developed for residential use with localised areas of public open space with Wythenshawe Hospital some 200m to the west.

Summary of Salient Environmental Considerations

2.7 British Geological Survey (BGS) plans indicate drift deposits to be absent beneath the majority of the site. However, the north-western section is indicated to be underlain by Devensian Glacial Till. Solid strata are represented by Triassic Bollin Mudstone. In consideration of the underlying geology, risks of subsidence from coal mining can be discounted.

2.8 No radon protection measures are necessary for new structures as described in publication BR211 by the Building Research Establishment.

2.9 The Glacial Till beneath the north-western section of the site is classified as a "Secondary (Undifferentiated) Aquifer'. The underlying Bollin Mudstone is classified as a "Secondary (B) Aquifer'.

2.10 The site is not in an Environment Agency (EA) Source Protection Zone (SPZ) and there are no groundwater abstractions located within 500m of the site. Mill Brook extends roughly north-west to south-east through the centre of the site.

2.11 There are no active or historic landfills recorded within 500m of the site.

Site History

2.12 The earliest maps dated 1876 indicate the site to comprise undeveloped woodland and agricultural land bordering Mill Brook.

2.13 The surrounding area originally comprised undeveloped rural / agricultural land with occasional small field ponds, woodlands and localised residential structures.

3.0 SUMMARY OF PHASE 2 INVESTIGATION

Ground Investigations

3.1 Ground investigations were undertaken by LOT Geotechnics Ltd on the 15th and 22nd March 2019. This comprised the formation of 12no window sample probeholes, to a maximum depth of 2.70 metres below ground level (mbgl).

3.2 The investigations were undertaken for a wider site area , for which WS09 to WS12 were located within the current development area.

Ground Conditions

3.3 Ground conditions encountered during the intrusive investigation comprise made ground or topsoil to depths of between 0.25m and 1.30mbgl, these being locally underlain by glacial till or alluvial deposits to depths of between 0.70m and 1.75mbgl and in turn by weathered Bollin Mudstone.

3.4 No visual and/or olfactory evidence of significant ground contamination was identified within the exploratory holes during the investigation in the subject site area.

3.5 Standing water was recorded at depths of between 1.13m and 1.80mbgl in the general area.

Chemical Analysis

3.6 Chemical analysis results indicate that made ground beneath the wider site contains only slightly elevated and localised levels of mercury, lead and the PAH compound dibenzo[a,h]anthracene, most likely due to the presence of ash and clinker within the made ground matrix. The concentrations of contaminants are therefore not considered to be significantly hazardous to health.

3.7 However, Crocidolite in the form of clumps / fibres were encountered within 1no sample of made ground in WS10 at 0.30mbgl, refer to Appendix 02.

3.8 Risks to controlled waters from the site were considered low with no specific environmental remediation considered necessary. However, the Main Contractor was to provide provisions through appropriate management of surface water run-off, to ensure that no silt or sediment enters the adjacent surface water course during construction.

Addendum 2026 Investigations

3.9 Additional intrusive investigations were undertaken by WML on 1st July 2026 to delineate the extent of the Crocidolite in WS10 (0.30mbgl).

3.10 The ground conditions comprised a surface horizon of topsoil described as dark brown, slightly gravelly, sightly organic sand, to depths of between 0.20 and 0.30mbgl. The made ground was underlain by Glacial Till comprising firm, friable, sandy clay to a maximum depth of 0.35mbgl.

3.11 Six samples of the shallow soils obtained from around the area of WS10 were submitted for asbestos screens, with none detected within any of the samples analysed.

3.12 Therefore, it was considered that the 2019 sample, which tested positive for crocidolite, was obtained from a thin layer of ashy made ground encountered beneath the topsoil. Such a material was not encountered within any of the 2026 locations (around WS10) with the topsoil found to be directly underlain by natural cohesive glacial till.

3.13 Based on 2019 and 2026 investigations it is considered that the ashy made ground encountered in WS10 is very localised and that any asbestos at the site appears to be limited to this material. In consideration

of the site history, it is possible that this material is associated with backfill to the adjacent manhole and sewer located within close proximity to WS10.

3.14 Therefore, during development it would be prudent to allow for any localised ashy material, where encountered, to be separated from topsoil and cohesive till.

3.15 A copy of the addendum investigation is included in Appendix 02.

Ground Gas Risk

3.16 WML undertook ground gas monitoring, primarily for methane and carbon dioxide, with associated flow rates, on six occasions between 3rd April and 26th June 2019.

3.17 The results to date indicate that methane concentrations do not exceed 0.1% by volume in air (v/v) with peak carbon dioxide concentrations ranging between 0.3% and 6.5% v/v. However, carbon dioxide exceeding 5% v/v occurred only within WS01 an WS03 on three of the six locations. However, it is noted that these are located outside the current development area depicted in the layout within Appendix 01. Therefore, are not considered within the current assessment.

3.18 No detectable ground gas flows have been recorded during the initial monitoring visits.

3.19 Therefore, based on the results within the subject site area, namely WS09, WS10 and WS11, give a maximum Qhg value of <0.006l/hr (0.1l/hr flow and 2.3% carbon dioxide) and indicate the site to classify as Characteristic Situation (CS) 1 – Very Low Gas Risk', with no specific gas protection measures required.

4.0 REMEDIATION STRATEGY

Asbestos Control Measures

4.1 Asbestos was detected within 1no of sample made ground in WS10 (0.30mbgl) during the initial investigations. However, no additional asbestos was recorded during the additional 2026 analyses. Therefore, it is considered that the ashy made ground encountered in WS10 is very localised and that any asbestos at the site appears to be limited to this material. In consideration of the site history, it is possible that this material is associated with backfill to the adjacent manhole and sewer located within close proximity to WS10.

4.2 Therefore, site operations will be under the full-time control of a Site Manager who will ensure that all asbestos management personnel hold necessary certificates relating to asbestos awareness. Site induction for site operatives and visitors will include a specific tool box talk relating to asbestos. This will cover basic identification of possible Asbestos Containing Material (ACM) and the procedure to be adopted if any such material is suspected.

4.3 The contractor will need to undertake consultation with and an asbestos specialist which will require the following guidelines to be addressed, where applicable.

4.4 Although not anticipated to be required, if/where further evidence of such ashy made ground is encountered a specialist consultant in the identification of ACM should be present during significant earth moving operations. The asbestos specialist will be UKAS accredited and will set up perimeter background monitoring stations around the site boundary and at strategic locations within the site as considered necessary during the earthworks. In addition, personal monitoring equipment will be deployed around working areas for work location monitoring. It is envisaged that air tests will be undertaken with asbestos fibre counting being undertaken in consultation with the asbestos specialist.

4.5 Furthermore, during periods of dry weather, the site surface will be dampened down to minimise the potential for airborne dust. Water sprays may also be employed at excavation locations to minimise the production of airborne dust. A detailed Method Statement for the control and management of dust on site will be contained within the main contractor's Environmental Management Plan.

4.6 The asbestos consultant will initially undertake a detailed walk-over of the site with selected samples of any suspected fibrous material so identified on the surface being sent to the laboratory for asbestos identification.

4.7 Where such materials are identified as ACM, similar fragments identified by further inspection will be located on plan and marked on site for subsequent removal by a suitably licensed asbestos contractor. Where considered appropriate, further samples of such materials will be taken for laboratory identification.

4.8 The consultant will similarly identify any suspected ACM during the subsequent earthworks/groundworks. Where obvious fragments of ACM are identified, they will be hand-picked where practical and removal from site by the asbestos contractor as soon as reasonably practical. Where such materials cannot be removed immediately, the ACM will be covered by impermeable membrane and clearly marked on site for subsequent removal.

4.9 Following the surface hand-picking exercise, samples of soil will be taken from the surface over the site at the discretion of the asbestos consultant and subjected to asbestos quantification analysis in the laboratory. Where the percentage of asbestos fibres are identified to be in excess of 0.1% by volume of the sample, further inspection of the soil in that area will be undertaken with removal of identified ACM where appropriate.

4.10 At the discretion of the asbestos consultant, further samples may also be taken for quantification analysis at the laboratory.

4.11 The licensed asbestos contractor will arrange for the necessary disposal of hand-picked ACM to an appropriately licensed landfill facility. Records in the form of Duty of Care documentation will be kept by the site manager for presentation where required.

Capping Requirements

4.12 As an exposure scenario is possible in garden areas which are directly underlain by made ground, where made ground is to remain in proposed garden areas, a 600mm clean cover, comprising 450mm of sub-soil and 150mm of topsoil will be required to break any exposure pathway to future site users.

4.13 However, the majority of the site is underlain by natural soil prior to placing a nominal 150mm of topsoil or any additional thickness to maintain plant growth, which may be species dependant.

4.14 It should be noted that if/where the retention of mature trees is required, any capping in this area would need to be assessed by the landscape architect/arboriculturist in order to limit any risks from root anoxia.

Unexpected Ground Contamination - Soils

4.15 It cannot be wholly discounted that unidentified contamination sources could be encountered during site development.

4.16 Should any visual / olfactory evidence of contamination be encountered, WML will advise of the most appropriate measures to deal with such contamination. This may include taking samples for chemical analysis and advising of appropriate routes for disposal to landfill.

4.17 Any unsuitable contaminated soil encountered will be segregated and stockpiled on impermeable sheeting and demarcated as contaminated soil for removal off-site.

4.18 Any contaminated soil will be stockpiled a sufficient distance from any other stockpiled clean soil such as arisings of natural soils, to prevent cross-contamination if immediate disposal to landfill is not possible.

4.19 A photographic record of any should be made available for inclusion within the validation report.

4.20 Removal dockets and receiving landfill information for any contaminated materials removed from the site will need to be retained for inclusion in the validation report.

Unexpected Ground Contamination - Groundwater

4.21 If mobile contaminants, or localised groundwater suspected to be contaminated, were encountered during the redevelopment ground works', the following actions should be undertaken.

4.22 Works should cease and the suspect groundwater should be sampled and submitted for chemical analyses. The results of which would allow the most appropriate remedial action to be determined and undertaken.

4.23 A photographic record of any groundwater removal should be made available for inclusion within the validation report.

4.24 Removal dockets and disposal information for any contaminated materials removed from the site will need to be retained for inclusion in the Validation report.

Water Supply Pipes

4.25 United Utilities Water will need to be consulted with regards the selection of suitable water supply pipe materials for the development. A copy of the completed form is included within Appendix 03 which indicates no requirement for barrier pipe.

5.0 VALIDATION

Asbestos Control Measures – If/Where Required

5.1 Although considered unlikely, in the event that significant volumes of asbestos are encountered during redevelopment. validation that any asbestos control measures required by the asbestos specialist have been successfully implemented will be recorded in the Health and Safety File. Such documentation will primarily include:

- A record of the extent and results of all asbestos monitoring carried out in accordance with ISO/IEC 17025:2017 to demonstrate that the concentration of asbestos in air (when measured in accordance with the 1997 WHO recommended method or similarly approved) have not exceeded the control limit of 0.1 fibres per cubic centimetre of air averaged over a continuous period of 4 hours.
- A record of physical control measures which have been adopted to minimise the risk of the control limit being exceeded.
- A record of ACM encountered and the measures adopted to deal with such materials.
- A record of all ACM removed from site and details of the Duty of Care documentation identifying the licensed facility to which it has been disposed to.
- A record of any incidents, accidents and emergencies.
- Photographic evidence of material movement and remedial works such as hand-picking activities.
- A full record of any cut and fill activities, to include an assessment of post-remediation conditions and potential risks to future site users. This will include an assessment of the extent, type, form, condition, concentration of residual asbestos in the soil, its depth of burial and measures to be adopted where any future activities are likely to disturb such soils with the potential to containing asbestos.
- If/where materials are being reused across the site, a record of material movement and distribution within the site in the form of a Materials Management Plan would also be required

Unexpected Ground Contamination

5.2 It cannot be wholly discounted that unidentified contamination sources could be encountered during site works. The removal of ground contamination would need to be witnessed by a geoenvironmental engineer who would take independent site records, including photographs to demonstrate appropriate compliance with the Remediation Strategy and subsequent Method Statements.

5.3 Removal of hotspots would also need to be validated by visual inspection to include photographs and measurements of the resulting excavations and / or sampling of suspected groundwater. Samples will be taken from the sides and, where practical, the bases of excavations for chemical analysis to demonstrate that remaining soils do not exceed the required reference values.

5.4 Records of all material removed from site will be kept by the Site Manager to demonstrate compliance with Duty of Care regulations. This will include a record of volumes of waste taken from site and details of the landfill facility receiving the waste.

5.5 Where necessary, EA pre-notification requirements will be complied with for the removal and disposal of waste considered to be Hazardous, backed up where necessary by Waste Acceptance Criteria (WAC) testing.

Imported Topsoil / Subsoil

5.6 It is considered that site won topsoil is not suitable for reuse within landscaped areas across the site. Therefore, new landscaped areas will need to be capped with imported soils.

5.7 The source of all imported materials will be clearly identified by reference to the site of origin. This will be accompanied by the results of appropriate chemical analysis from the supplier to certify material suitability. Certificates will be required for inspection prior to any imported material being brought to site.

5.8 Imported Topsoil and sub-soil will be stockpiled separately from other materials and clearly marked on site.

5.9 The site manager will keep records of the volumes of all imported Topsoil and sub-soil delivered to site in the form of delivery slips. The records will be presented as confirmation that sufficient analysis has been undertaken on imported Topsoil/sub-soil.

5.10 Notwithstanding the above, material delivered to site will be subject to further chemical analysis to confirm suitability. In this respect, the following testing strata per soil source will be required in line with LA Planning Guidance.

Source	Soils	Testing Regime	Testing Requirements
Greenfield	Topsoil / subsoil	1:200m^3 (min 3no per source)	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM).
Manufactured		1:50m^3 (min 3no per source)	
Brownfield/Screened Soils		1:50m^3 (min 6no per source)	Standard metals/metalloids (as above), PAH (16 USEPA speciation), asbestos, pH and soil organic matter (SOM). Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).

5.11 The results of the analysis will be compared against Site Specific Assessment Criteria for 'Residential with home-grown produce' as presented in Appendix 04.

5.12 Should the results of such analysis significantly exceed the relevant Site-Specific Assessment Criteria in a significant number of samples the soil will be removed from site and replaced with material which meets the site requirements.

Clean Cover Thickness

5.13 The clean cover is to be incorporated over areas of Made Ground, and the thickness of sub-soil and Topsoil will be validated by undertaking hand-dug trial pits with photographic records following placement.

5.14 Hand dug trial pits will be undertaken through the full thickness of the capping soils at a frequency of at least one to either the front or rear garden to each residential structure (8no) and 1no pit per 25m in linear general landscape areas.

5.15 The photographic record will confirm the required clean cover thickness by use of a levelling staff. Each photograph will also clearly show the location of the trial pit excavation relative to its surroundings.

6.0 VALIDATION REPORT

6.1 On completion of the Remediation Works to the site, a Validation Report will be produced by the geo-environmental engineer, which will be submitted to the Local Authority for approval.

6.2 Where applicable the Validation Report will include:

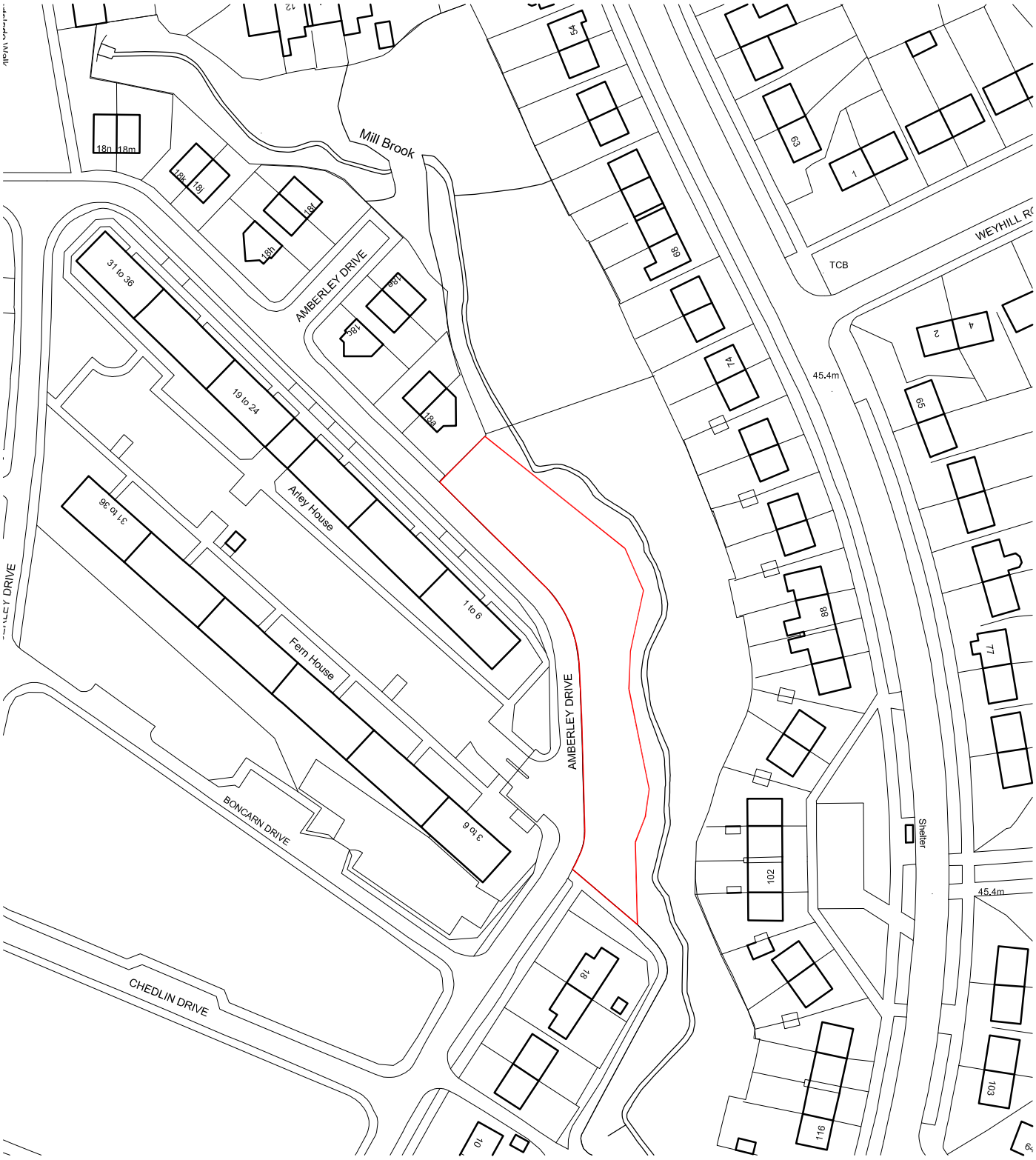
- Documentation in relation to asbestos control measures.
- Details of any unexpected ground contamination and the measures undertaken to deal with this, to include records of excavation, the results of chemical analysis resulting from the removal of contaminated soil and / or groundwater.
- Results of subsequent chemical analysis of imported Topsoil/sub-soil to confirm compliance with the Site-Specific Assessment Criteria.
- Records of the volumes and suitability of all imported fill, Topsoil and sub-soil delivered to site in the form of delivery slips and certificates.
- Sample waste management records confirming compliance with Duty of Care regulations;
- Photographic evidence of suitable sub-soil/Topsoil cover in landscaping area;
- Confirmation of potable water supply pipe materials.

APPENDIX 01

Drawings

Notes:
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Written dimensions to be taken in preference to scaled dimensions
Due to inaccuracies of scanning, scanned images should not be scaled.

REV:	DATE:	DESCRIPTION:	BY:



0m 25m 50m

N

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STATUS:

PLANNING

PROJECT:

New Housing
Amberley Drive
Wythenshawe

DRAWING NUMBER:	SCALE:	DATE:
18073-PJA-00-00-DR-A-1000	1:1250@A4	05.07.23
DRAWING TITLE:	BY:	CHECKED:
Site Location Plan	SD	SD

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Designers Risk Register

Ref	Element/Activity	Hazard	Persons at risk	Risk	Risk owner	Design measures to reduce or eliminate risk	Residual risk level/ Information about residual	Construction design element
1	Natural Environment	Damage, Contamination.	C, P		C	Control Measures and RAMS for all works	Ongoing	Contractor to implement RAMS accordingly.
2	Security	Damage, Theft.	C, P		C	Security Fencing, Visual surveillance	Ongoing	Contractor to provide site boundary fencing and Security surveillance
3	Temp works	Assembly, installation and disassembly of heavy components, manual handling operations, collapse of banking, access provisions, restricted working space, working at height, etc.	C, P		C	Minimise requirement for Temporary Works where possible, Contractor to appoint Temporary Works Coordinator to set out temporary works procedures and a Temporary Works Supervisor to carry out necessary inspections.	Ongoing	Temporary Works Coordinator to provide Design Risk Management information on any significant or unusual risks.
4	Outbreak of fire during the construction phase	Maintaining fire escape routes from the structure during construction phase, ensuring sufficient means of escape and fire-fighting equipment, etc.	C, P		C	Prepare Fire Safety Plan and RAMS to detail procedures to be implemented.	Ongoing	Ensure that any control measures identified are implemented under the appropriate RAMS.
5	Traffic management i.e. vehicular access for plant and deliveries	Traffic movements across live roads, collisions with vehicles and pedestrians	C, P		C	Contractor to include traffic management strategy within their CPP and supply a Site Establishment and Traffic Management Plan. Contractor to consider local parking and any applicable restrictions with the associated vehicular access and parking arrangements.	Ongoing	Suitable warning/directional signage to be installed to denote construction site access route. Traffic management arrangements to be monitored throughout the construction phase, PCI and CPP to be updated as required.
6	Site work generally	Manual handling operations, contact with hazardous substances, Disturbance to adjacent occupied buildings, Fragile roofs whilst building under construction, Injury, damage, delays caused during installation of large and/or heavy components, Unplanned collapse of plant/equipment, damage to structures and infrastructure.	C, P		C	DRM information on significant or unusual risks associated with these works, and residual risk information where required. DRM information to consider interfaces with other design elements. Design Team to design out materials over 20kg that require manual handling. Design Team to design out hazardous materials. Design Team to consider which adjacent areas may be affected by noise, vibration, dust and other restrictions. Design Team to consider and factor into their designs. Design Team to design out potential for fragile roofs during construction. Fall from height prevention measures to be incorporated into rooflights or other temporary gaps within roofs.	Ongoing	Advise of any design changes incorporating materials over 20kg that require manual handling, or hazardous materials, so that any implications in relation to health and safety matters can be properly assessed prior to being implemented. Ensure that the control measures identified in the lifting plan and RAMS are implemented. Impact on adjacent occupied buildings, adjoining highways etc. to be reviewed on an ongoing basis throughout the construction phase.
7	Excavation and Groundworks	Contamination, Stability, Collapse, Noise and Vibration, Falling into	C, P		C	Geo-Environmental Assessment to be included in the PCI. Contractor to provide Method Statement/RAMS to cover works.	Ongoing	Groundworks in accordance with Geo-Environmental Assessment. Contractor to ensure control measures identified in report(s) are implemented under the RAMS.
8	Levels/slope formation	Collapse, Land slip	C, P		C	Ensure gradual creation of slopes and Contractor to provide Method Statement/RAMS to cover works.	Ongoing	Groundworks in accordance with Geo-Environmental Assessment. Contractor to ensure control measures identified in report(s) are implemented under appropriates RAMS.
9	Architectural Design Elements	Work at height, manual handling, assembling and installing heavy components, contact with live services, restricted access and working space.	C		DT	Provide DRM information on significant and/or unusual risks associated with the works and residual risks where required.	Ongoing	Contractors to ensure that any control measures identified are implemented under appropriate RAMS
10	Construction of building envelopes	Injury, damage, delays caused during installation of large and/or heavy components	C		DT,C	Design Team to ensure that the materials specified in the design can be transported to the final position on site considering all site constraints. Any unusual or difficult components that cannot be designed out must be identified at the design stage, so Contractor can manage installation.	Ongoing	Impact on adjacent occupied buildings, adjoining highways etc. to be reviewed on an ongoing basis throughout the construction phase.
11	Buildability generally	Restrictions due to adjacent structures that affect buildability	C, P		DT,C	Design Team to consider adjacent structures that my affect how the building can safely be built i.e. structures that affect the use of cranes due to risk of oversailing etc.	Ongoing	Impact on adjacent occupied buildings, adjoining highways etc. to be reviewed on an ongoing basis throughout the construction phase.
12	Use of plant and mechanical lifting equipment	Unplanned collapse of plant/equipment, damage to structures and infrastructure	C, P		C	Relevant contractors to provide a lifting plan for all lifting activities to indicate location of mechanical lifting equipment/cranage and lifting zones.	Ongoing	Ensure that the control measures identified in the lifting plan and RAMS are implemented.
13	Existing Services	Contact with live services	C, P		C	Service mapping information provided in PCI. Contractor to liaise with Statutory Undertaker as required. Any work carried out in the vicinity of service mains must be carried out in accordance with the Statutory Undertakers requirements. Main Contractor and any other relevant contractors must submit RAMS to the Statutory Undertaker prior to the respective work elements commencing.	Ongoing	Contractor to arrange service disconnections prior to works commencing. Disconnection notices to be provided prior to commencement. Contractor must determine the existing service locations of by way of a pre-start survey/exploratory works. All RAMS for works in the vicinity of existing services must be agreed with the Statutory Undertaker before the respective work elements commence. Contractor to ensure that the control measures identified in the RAMS are implemented, including any methods/systems of work required by
14	Building maintenance	Injury caused due to cleaning and maintenance works	P, M, EU		C, DT	Design Team to develop cleaning and maintenance strategy to ensure the following can be accessed, cleaned, and replaced safely: • Windows • Roofs • Gutters • Internal and external M&E fittings • Large items of plant and equipment • Manholes	Ongoing	Maintenance Strategy to be provided in Final H&S File/Handover Pack and End Users/Maintenance Contractors to provide Method Statements/RAMS for proposed works and implement accordingly.
15	Future work on the building and associated infrastructure	Work at height including roof access, manual handling, restricted working space, contact with live services etc.	M, EU		DT,C	Design Team to provide details of civil and structural design criteria including key principles incorporated into the design e.g. bracing, sequences or order of removal, temporary works envisaged to alter or demolish, and design safe working loads for structural elements, particularly where these may preclude placing scaffolding or plant when future works are undertaken, for inclusion in the H&S File. Design Team and Contractor to provide design statement including key design principles, maintenance & cleaning access strategy, fire strategy and residual risk information for inclusion in the H&S File. Designers/Contractors preparing M&E designs to provide details of maintenance requirements for M&E services installation including access & maintenance strategy and plant replacement strategy, for inclusion in the H&S File. Contractor and relevant subcontractors to provide H&S File information upon completion, including residual risk information, method statements for items of work that could require specialist dismantling by the end user, technical data for hazardous materials that may be present upon completion, technical information sheets for any specific material or plant that has been installed, maintenance information for equipment and materials installed, manufacturer's guarantees, etc.		Provide final H&S File/Handover Pack and End Users/Maintenance Contractors to provide Method Statements/RAMS for proposed works and implement accordingly.
16	Future demolition of the buildings	Injury/death caused by uncontrolled collapse	M, EU, P		DT,C	Demolition statement for inclusion in the H&S File.	Ongoing	Provide final H&S File/Handover Pack and Future Demolition Contractors to provide Method Statements/RAMS for proposed works and implement accordingly.



- Adopted Bitmac Pavement
- Bitmac Parking Space with 50mm pin kerb edging
- PCC Paving
- Grass
- Existing Tree retained
- Existing Tree retained
- Existing Tree/Undergrowth removed/cut back
- 1800mm high Close-Boarded Treated Timber Fencing
- New Planting
- Dropped Kerb
- Drainage Outfall Easement
- Existing Brook

N

0m 20m

4no. 3B/5P Wide Semi-Detached Houses @ 96.1 sqm	384.4sqm
4no. 2B/4P Wide Semi-Detached Houses @ 89.0 sqm	356.0sqm
Total 8 no. Houses	740.4sqm

Notes:

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Written dimensions to be taken in preference to scaled dimensions
Due to inaccuracies of scanning, scanned images should not be scaled.

REV:	DATE:	DESCRIPTION:	BY:
A	07.02.22	Amended following Client comment.	SD
B	11.03.22	House Layouts updated to latest versions.	SD
C	15.03.22	Retained and omitted trees indicated, proposed low level planting indicated. Colour added, drawing changed to A1 and 1:500 scale.	SD
D	23.11.22	8no Units on the wooded area omitted.	SD
E	11.04.23	Site Redline amended to omit wooded area following client instruction and drawing scale revised to fit sheet.	SD
F	26.05.23	Layout updated following LPA comments.	OM
G	26.05.23	Second car parking space removed.	OM
H	05.06.23	Parking planting amended.	OM
J	05.06.23	Plot 1 parking amended.	OM
K	06.07.23	Various minor amendments & Landscape Materials indicated.	SD
L	09.08.23	Various proposed levels added.	OM
M	21.08.23	Buildings moved to 1300mm back from edge of pavement following SE advice and existing drainage survey indicated.	SD
N	17.10.23	Designers Risk Register added following Principal Designer request.	SD
O	26.02.25	Existing Tree in Plot 1 rear garden (T23 on Tree Survey) omitted following comment from Planning.	SD

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CLIENT:
Wythenshawe CHG

PROJECT:
New Housing
Amberley Drive
Wythenshawe

DRAWING NUMBER:
18073-PJA-00-XX-DR-A-1001-O

DRAWING TITLE:
Site Layout Plan

STATUS:
PLANNING

SCALE:	DATE:	BY:	CHECKED:
1:200@A1	23.12.21	SD	SD

PADDOCK JOHNSON
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APPENDIX 02

WML Addendum Investigations - 2026

WML CONSULTING
Civil, Structural and Geotechnical Engineers

Third Floor South
Metropolitan House
Station Road
Cheadle Hulme
Cheshire SK8 7AZ

Tel: 0161 482 0600
Email: info@wmlconsulting.com
Website: www.wmlconsulting.com

Liam Charnock,
John Southworth Builders Limited,
10 Charles Street,
Dukinfield,
SK16 4SD

Our Ref: 12765G/TPB/SCS

8th July 2026

Dear Sir,

Amberley Drive, Wythenshawe – Intrusive Investigation

WML Consulting were commissioned by John Southworth Builders Limited to undertake a site investigation at Amberley Drive, Wythenshawe, M23 2TG.

During an investigation in 2019, crocidolite (blue) asbestos fibres / clumps were detected in 1no sample of made ground, namely within WS10 at 0.30mbgl. The findings were provided in the following report:-

- Phase 2 Geo-environmental Investigation and Assessment, reference 8538G-WML-00-XX RP-G-0002, dated May 2019.

These addendum investigations are to delineate the area around the asbestos and determine if this was an isolated sample.

2026 Intrusive Works

Intrusive investigations undertaken by WML comprised hand excavated trial pits on 1st July 2026. These were located in the area where the sample taken during the 2019 WML Phase 2 Investigations recorded a positive asbestos screen (WS10 at 0.30mbgl).

The subsequent ground conditions encountered, together with other pertinent observations were recorded during the intrusive works and are presented in Appendix 02.

The Exploratory Hole Location drawing, a surveyed by Powers UK Ltd, is presented in Appendix 01.

The coordinates, as surveys by Powers UK Ltd are provided on the appropriate logs in Appendix 02.

The results of the chemical laboratory testing are presented in Appendix 03.

Ground Conditions

The ground conditions comprised a surface horizon of topsoil described as dark brown, slightly gravelly, sightly organic sand, to depths of between 0.20 and 0.30mbgl. Gravel sized fragments included sandstone and brick.

The made ground was underlain by Glacial Till comprising firm, friable, sandy clay to a maximum depth of 0.35mbgl.

Directors
N. Garside BEng(Hons) CEng FIStructE
A.J.W. Leng BEng(Hons) CEng MIStructE
L.M. O'Gorman BSc(Eng) Hons CEng MIStructE
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Associates
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P.G. Davies BSc(Hons) CGeol FGS

WML Consulting Limited
Registered in England No. 3176267

Visual/Olfactory Evidence of Contamination

No visual and/or olfactory evidence of significant ground contamination have been identified within the exploratory holes during the investigation.

Groundwater

Groundwater was not encountered during the formation of the exploratory holes.

Chemical Testing

Six samples of the shallow soils obtained from around the area of WS10 were submitted for asbestos screens, with none detected within any of the samples analysed.

Conclusions

It is considered that the 2019 sample, which tested positive for crocidolite, was obtained from a thin layer of ashy made ground encountered beneath the topsoil. Such a material was not encountered within any of the 2026 locations (around WS10) with the topsoil found to be directly underlain by natural cohesive glacial till.

Based on 2019 and 2026 investigations it is considered that the ashy made ground encountered in WS10 is very localised and that any asbestos at the site appears to be limited to this material. In consideration of the site history, it is possible that this material is associated with backfill to the adjacent manhole and sewer located within close proximity to WS10.

Therefore, during development it would be prudent to allow for any localised ashy material, where encountered, to be separated from topsoil and cohesive till.

General

It should be noted that ground conditions may vary between and away from the exploratory hole positions, and that no account can be taken in this report of such variations.

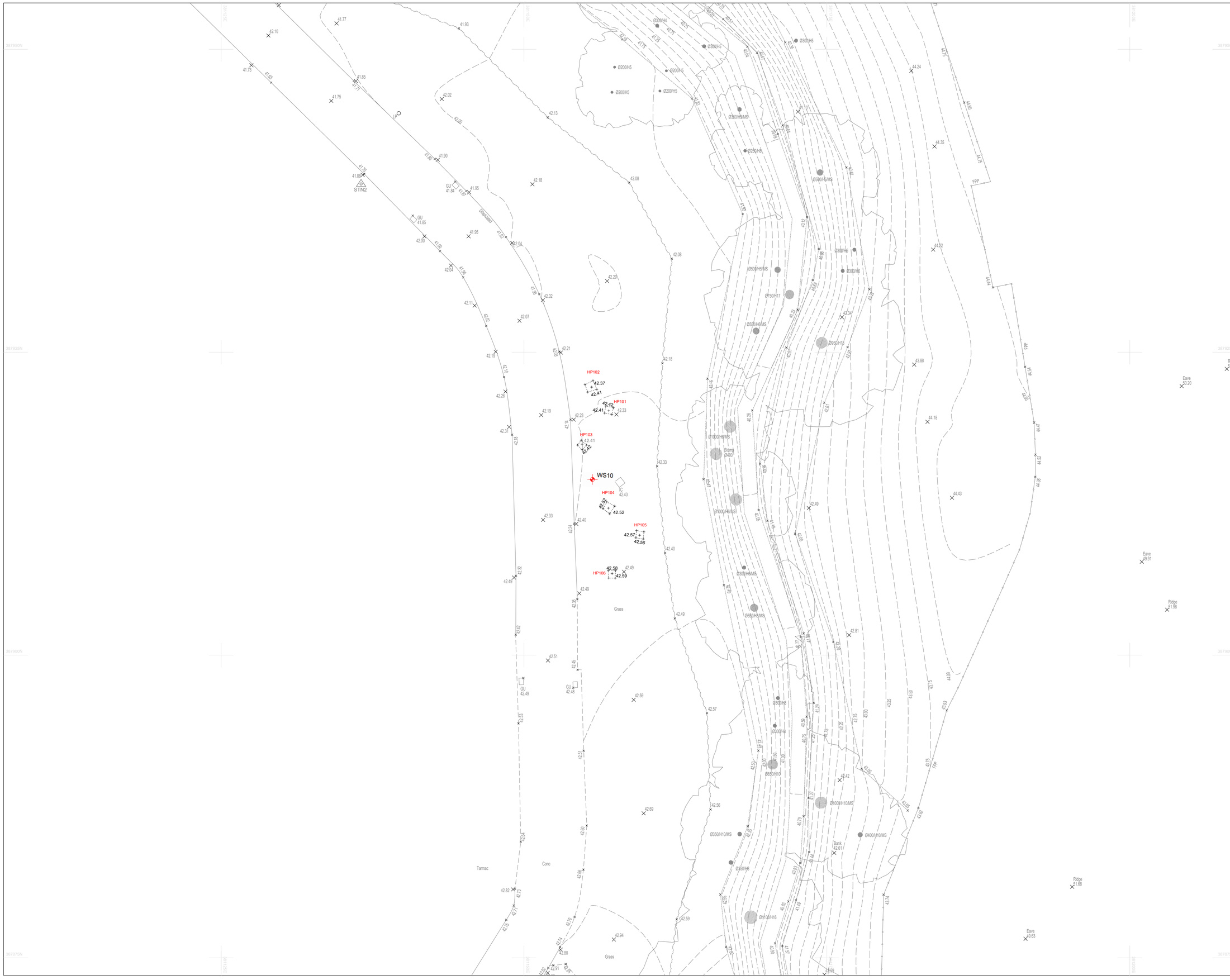
We trust this provides you with the information required at this time. However, please do not hesitate to contact us if you have any queries.

Yours sincerely

T P Booth S C Seddon

For and on behalf of WML CONSULTING

APPENDIX 01
DRAWINGS



Survey Grid and Datum

The derived coordinate system used for this survey is related to Ordnance Survey national grid using Smartnet RTK (OSTN15 Transformation), orientated to north with a scale factor of 1.000.

The derived level datum used for this survey is related to Ordnance Survey (OSGM15 Geoid Model) using Smartnet RTK.

To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

Legend

- Top/Bottom of bank
- Building
- Channel
- Concrete slab
- Closeboard fence
- Chainlink fence
- Concrete post & panel fence
- Iron railing fence
- Palisade fence
- Post & Panel fence
- Post & rail fence
- Post and Wire Fence
- Hedge
- Invert
- Kerb line (bottom)
- Kerb line (top)
- Overhead Power lines
- SBX Switchbox
- Steel
- Tree spread
- Verge
- Wall
- BH Borehole
- Bol Bollard
- CATV Cable tv
- Elec Electric cover
- EP Electricity pole
- Earth Earth rod
- FH Fire hydrant
- G Gulley
- GAS Gas cover
- IC Inspection cover
- LP Lamp post
- MH Manhole
- Marker Marker post
- OSBM OSBM
- RE Rodding eye
- RS Road sign
- SP Sign post
- Stump Stump
- SV Sluice Valve
- TP Telegraph Pole
- Trees
- TRL Traffic lights
- Trial Pit Trial pit
- Tree Trunk
- W Water cover
- Bus Stop Bus stop
- BT BT rectangle 3 pits

Notes

The contractor must ensure that adequates checks on building dimensions, levels, features are completed prior to commencing any construction works.

Any errors or discrepancies must be notified to Powers UK Ltd immediately.

The accuracy of the digital data is the same as the plotting scale implies.

All dimensions are in metres unless otherwise stated.

Topographical Surveys

Any surveyed boundary features may not be representative of the legal boundary of the site

All reasonable effort has been made to survey features and detail that are unobstructed/visible during at the time of survey

Grouped trees have been shown as a tree spread, individual trees are drawn to scale showing a bole diameter taken at approximately 1.5m above GL and an average spread

Measured Building Surveys

All measurements to internal wall are taken at approximately 1.5m above floor level and assumed to be vertical

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Do not scale from this drawing.

Station Listing

Layout Key

(1)

Rev	Date	Description	Check

Meridian House, 58-60 Hillside Road, Frodsham, Cheshire WA6 6AG
Tel: 01928 734473
Email: surveyors@powersuk.com
www.powersuk.com

Client: WML Consulting

Site: Amberley Drive, Wythenshawe, Manchester

Title: Topographical survey

Survey by	JH	Drawn by	GM
Check by	JL	Date	01/07/26
Scale [A2 Sheet]	1:200	Project No.	FP-8087
Status	FINAL		
Drawing No.	FP8087-T-001	Revision	REV_ID

APPENDIX 02
EXPLORATORY HOLE RECORDS

WML CONSULTING	Project Title: Amberley Drive		WS10
	Project Number: 8538G	Client: Garden City Design & Build Ltd	Sheet 1 Of 1
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 25/03/2019	Method: Window Sample	Driller: LOT Geotechnics Ltd	Logged By: TPB

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.30	E				0.30	Turf over dark brown, slightly gravelly, clayey SAND with rootlets. Gravel is subangular, fine to coarse, including sandstone. (TOPSOIL)		
					0.35	Dark grey, sandy, subangular, fine to coarse GRAVEL including ash and clinker. (MADE GROUND)		
1.00	D	N=4			1.00	Firm, orange brown, slightly silty, sandy CLAY. (WEATHERED BOLLIN MUDSTONE)		
					1.30	Orange brown, slightly silty, clayey, fine SAND. (WEATHERED BOLLIN MUDSTONE)		
		pp 50/180mm			1.50	Extremely weak, reddish brown and occasionally grey mottled, moderately weathered MUDSTONE. (BOLLIN MUDSTONE)		
					2.00	End Of Borehole At 2.00 m		
					3.00			

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Refused at 2.00mbgl.

Scale: 1:20

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

WML CONSULTING	Project Title: Amberley Drive		HP101
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.41	N Coord: 387920.1683	E Coord: 381157.0019
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
						Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
0.30	D		-0.30		0.30		
			-0.35		0.35	Firm, friable, sandy CLAY. (GLACIAL TILL)	
						End Of Trial Pit At 0.35 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

Produced by Geologs www.geologs.com

WML CONSULTING	Project Title: Amberley Drive		HP102
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.37	N Coord: 387922.1171	E Coord: 381155.5883
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
0.15	D		-0.20		0.20	Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
			-0.35		0.35	Firm, friable, sandy CLAY. (GLACIAL TILL)	
						End Of Trial Pit At 0.35 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

Produced by Geologs www.geologs.com

WML CONSULTING	Project Title: Amberley Drive		HP103
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.41	N Coord: 387917.4502	E Coord: 381154.8007
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
0.20	D		-0.25		0.25	Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
			-0.30		0.30	Firm, friable, sandy CLAY. (GLACIAL TILL) End Of Trial Pit At 0.30 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

Produced by Geologs www.geologs.com

WML CONSULTING	Project Title: Amberley Drive		HP104
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.52	N Coord: 387912.1296	E Coord: 381156.9596
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
0.20	D		-0.23		0.23	Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
			-0.30		0.30	Firm, friable, sandy CLAY. (GLACIAL TILL)	
						End Of Trial Pit At 0.30 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

Produced by Geologs www.geologs.com

WML CONSULTING	Project Title: Amberley Drive		HP105
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.57	N Coord: 387909.8898	E Coord: 381159.5477
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
0.20	D		-0.25		0.25	Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
			-0.35		0.35	Firm, friable, sandy CLAY. (GLACIAL TILL)	
						End Of Trial Pit At 0.35 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

Produced by Geologs www.geologs.com

WML CONSULTING	Project Title: Amberley Drive		HP106
	Project Number: 12765G	Client: John Southworth Builders Ltd	Sheet 1 Of 1
	GL (mAOD): 42.59	N Coord: 387906.7243	E Coord: 381157.2669
Date: 01/07/2026	Method: Hand Dug	Logged By: TPB	Scale: 1:10



Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water
0.10	D					Turf over dark brown, slightly gravelly, slightly organic sand. Gravel is subangular to subrounded, fine to coarse, including sandstone and brick. (TOPSOIL)	
			-0.20		0.20	Firm, friable, sandy CLAY. (GLACIAL TILL)	
			-0.30		0.30	End Of Trial Pit At 0.30 m	

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

Produced by Geologs www.geologs.com

APPENDIX 03
LABORATORY TEST RESULTS

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 26/08302
Issue Number: 1 **Date:** 06 July, 2026

Client:
WML Consulting Ltd
Third Floor South
Metropolitan House
Station Rd
Cheadle Hulme
Cheshire
SK8 7AZ

Project Manager: Tom Booth
Project Name: Amberley Drive
Project Ref: 12765G
Order No: 12765G
Date Samples Received: 02/07/26
Date Instructions Received: 03/07/26
Date Analysis Completed: 05/07/26

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

UKAS TESTING
1247

Envirolab Job Number: 26/08302

Client Project Name: Amberley Drive

Client Project Ref: 12765G

Lab Sample ID	26/08302/1	26/08302/2	26/08302/3	26/08302/4	26/08302/5	26/08302/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP102	HP103	HP104	HP105	HP106				
Depth to Top	0.30	0.15	0.20	0.20	0.20	0.10				
Depth To Bottom										
Date Sampled	01-Jul-26	01-Jul-26	01-Jul-26	01-Jul-26	01-Jul-26	01-Jul-26				
Sample Type	AMALGAMATED SAMPLE	SOIL - D	SOIL - D	SOIL - D	SOIL - D	SOIL - D				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD^{U}	NAD	NAD	NAD	NAD	NAD				A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A				A-T-045

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
Subscript "@"	Result is an opinion
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: WML Consulting Ltd, Third Floor South, Metropolitan House, Station Rd, Cheadle Hulme, Cheshire, SK8 7AZ

Project: Amberley Drive

Clients Project No: 12765G

Project No: 26/08302

Date Received: 03/07/2026 (am)

Cool Box Temperatures (°C): 12.7

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	26/08302/1	26/08302/2	26/08302/3	26/08302/4	26/08302/5	26/08302/6
Client Sample No						
Client Sample ID/Depth	HP101 0.30m	HP102 0.15m	HP103 0.20m	HP104 0.20m	HP105 0.20m	HP106 0.10m
Date Sampled	01/07/26	01/07/26	01/07/26	01/07/26	01/07/26	01/07/26
A-T-045	05/07/2026	05/07/2026	05/07/2026	05/07/2026	05/07/2026	05/07/2026

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX 03

United Utilities Risk Assessment

Supplementary guidance for the selection of water pipes in land potentially affected by contamination

United Utilities
Water for the North West

Introduction

In January 2011, UK Water Industry Research (UKWIR) published "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites" (Ref 10/WM/03/21; the 'UKWIR Guidance'). Its aim is to ensure that the correct materials are selected for water pipes and components to be used below ground in brownfield sites to protect the quality of drinking water whilst taking into account the service life of the water distribution system. It supersedes the Water Regulations Advisory Scheme (WRAS) Information and Guidance Note 9-04-03 "Laying Pipes in Contaminated Land" which has been withdrawn.

The UKWIR Guidance is for use by developers, self-lay organisations, water companies and consultants when planning, designing and constructing water mains and/or services in brownfield sites. It defines brownfield sites as "land or premises that have previously been used or developed. They may also be vacant or derelict. However, they are not necessarily contaminated." The UKWIR Guidance states that it does not apply to greenfield sites; however, we consider this supplementary guidance and the relevant sections of the UKWIR guidance as being equally suitable for application to those greenfield sites considered to be potentially affected by contamination. Where greenfield sites are not affected by contamination a preliminary risk assessment (see below) will suffice.

The UKWIR Guidance also states that there should be no departure from its provisions *"except where formally approved by the Water Company, such departure being technically justifiable or representing advances in knowledge or product development"*.

We have adopted the UKWIR Guidance in principle and produced this company specific supplementary guidance (the 'UUW Guidance') which includes the Risk Assessment for Water Pipes (the 'RA').

This guidance does not cover operative safety, health exposure modelling or accidental pipe damage.

Risk Assessment for Water Pipes in Land Potentially Affected by Contamination

Any application for new water supplies to a development (construction of new properties, or renovation or conversion of existing buildings) in land potentially affected by contamination shall include a completed RA.

As a minimum a desk study (preliminary risk assessment) shall be provided with the RA in accordance with the framework in Environment Agency publication "Model Procedures for the Management of Land Contamination" (ref: CLR11) that sets out whether the land through which the pipes are to be laid may be affected by contamination. The application of the source, pathway, receptor concept will be an integral part of any pipeline risk assessment. For each potential source (the contamination) and each potential receptor (the water pipe), consideration shall be given to whether a potential pathway between source and receptor exists, or may exist in the future, linking the two. There are normally only three pathways by which contamination may come into contact with water pipes. These are direct contact with the soil or backfill, an excessive vapour phase or a contaminated groundwater regime. If none of these conditions exist on site (adopting the source, pathway, receptor concept) then it is likely that extended and/or targeted soil testing will not be required and a simple risk assessment will suffice. For those sites where land may be affected by contamination appropriate testing shall be undertaken on the materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials. The testing requirements are as described in the following section.

The signatories of the Water Supply Application Form and the RA must ensure that all assessments of land condition have been carried out in accordance with applicable current standards and guidelines by or under the direction of a suitably qualified competent person.

We require the competent person to be a) a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, the Geological Society of London or the Royal Institution of Chartered Surveyors) with relevant experience of investigating contaminated sites or b) a Specialist in Land Condition (SiLC) with appropriate geo-environmental experience.

How to contact us about the information in this leaflet



DeveloperServicesWater@uuplc.co.uk



0345 072 6067
Opening hours:
8am-5pm Mon to Thurs
8am-4.30pm Fri

Testing Requirements

The soil, rock and if appropriate groundwater tests that are required on all sites where the potential for organic contamination has been identified in the desk study and where water pipes are proposed to be laid must be accredited by United Kingdom Accreditation Service (UKAS) as a minimum and where commercially available the Environment Agency's Monitoring Certification Service (MCERTS). These accredited tests should be undertaken for:

Banded hydrocarbons EC5-EC10, EC10-EC16, EC16-EC40 (Total aliphatic and aromatic hydrocarbons for each banding may be summed). Aliphatic/aromatic fractionation and subsequent banding may be required should a more detailed site specific risk assessment be undertaken. The bandings have been amended to take into account readily available laboratory tests. The equivalent carbon number (EC) is used to assess petroleum hydrocarbon mixtures rather than the actual number of carbon atoms in the molecule in line with guidance issued by the Environment Agency (2005).

Volatile organic compounds (VOCs) (method by head space or purge & trap GCMS) with tentative identification of compounds greater than 20µg/kg. The method used should be capable of detecting a wide range of compounds listed in US EPA Method 8260C or similar. The method should include analysis of naphthalene.

BTEX (Benzene, toluene, ethyl benzene and xylenes) plus MTBE (Methyl-tertiary butyl ether) (by head space GCMS)

Semi-Volatile Organic Compounds (SVOCs) (method by GCMS) with tentative identification of compounds greater than 20µg/kg The method used should be capable of detecting the compounds listed in US EPA Method 8270D or similar. The total concentration of SVOCs excludes polycyclic aromatic hydrocarbons, ethers, nitrobenzene, ketones, aldehydes, phenols, cresols and chlorinated phenols. Phenols, cresols and chlorinated phenols which are detected by the SVOC analysis are given their own assessment criteria.

We do not consider Table G1 and Table 3.1 of the UKWIR Guidance to be a definitive guide for assessing total concentrations. Table 1 in the RA below replaces Table 3.1 of the UKWIR Guidance.

Where previous site uses include the use, storage, treatment, disposal or manufacture of any of the following, appropriate testing for these substances will be required:

- Ethers, nitrobenzene, ketones, aldehydes and amines. Note that the presence of amines on any site at the proposed pipe depth +/- 1.0m precludes the use of polyethylene. The methods of analysis and method of calculation of total concentrations of these compounds will need to be agreed with UUW.

To comply with the testing requirements, the suites of tests that are required on all brownfield sites where wrapped steel, wrapped ductile iron or copper pipes are to be laid as minimum must include:

- pH, Conductivity and redox potential

Sufficiency of Testing

Water pipes are normally laid at between 0.75 and 1.35m from finished ground level to crown of pipe. Samples taken and tested must represent both a) the soil in which the water pipes are to be laid and b) the soil down to at least 500mm below the underside of the proposed pipe. Where the proposed depth of the pipes is unknown at the time of application, soil samples representative of the ground condition between surface level and 1.5m below finished ground level shall be taken as a minimum. Where appropriate (see UKWIR Guidance) groundwater sampling and groundwater monitoring will also be necessary. Photo-ionisation detection (PID) monitoring along the proposed route of the pipeline may be employed, though this does not provide a definitive guide to the suitability of water pipe materials.

Where required a sufficient number of test results should be obtained from the material in which the pipes are to be laid. CLAIRE/CIEH 2008 "Guidance on comparing soil contamination data with a critical concentration" may be used, where appropriate, to justify the number of soil samples tested; however, this statistical model should not be used on heterogeneous materials or used to average test results from different types of materials.

Further guidance on representative sampling is contained within BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites, the Department of the Environment's Contaminated Land Research Report "Sampling strategies for contaminated land" prepared by The Centre for Research into the Built Environment, Nottingham Trent University (Ref: CLR 4; 1994) and the Environment Agency's "Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination" (ref: R&D Technical Report P5-066/TR; 2000).

Where remediation has been carried out on the site, the test results obtained from validation samples will be used in the assessment. Where a horizontal capping system has been or will be employed using materials spread across a site, sufficient samples will need to be taken to characterise the capping material used and the results presented to UUW. However, the sufficiency of sampling on the horizontal capping system, in which the pipeline will be placed, may be assessed on the basis of the source, quantity and type of materials used.

Detection Limits

Only positive concentrations, ie those above the limit of detection should be used in summation of VOC and SVOC (or other test groups of compounds ie phenols, cresols and chlorinated phenols). Laboratory methods shall provide a minimum limit of detection of 10µg/kg for each individual VOC or SVOC (or other test groups of compounds) quantitatively detected in accordance with the methods described above. For tentatively identified compounds (TICs), only those compounds with a concentration of 20µg/kg or greater shall be used in the summation of VOC and SVOC (or other test groups of compounds).

Protective Measures

Where polyethylene, ductile iron, steel or copper pipes are to be laid on a brownfield site or other land potentially affected by contamination (whether or not it has been remediated) and where the concentrations exceed the generic guideline values set out in Table 1 of the RA, the developer shall provide either:

a) a robust risk assessment to show how any contaminants will not significantly impact on proposed water supplies or buried assets over the lifetime of the assets; or

b) more suitable pipe materials; or

c) an engineering solution to protect the pipe work backed up by an adequate assessment of the risk.

Liquid free phase product (e.g. oil or free solvent layers) shall not remain in the ground or groundwater in the vicinity of water pipes, whether barrier pipe or any other pipe materials are used.

When designing pipe routes on land potentially affected by contamination, new preferential contamination pathways along the route of new water pipes shall not be created. Particular measures may be required to prevent the possible migration of contamination through pipe bedding and into controlled waters.

References

BS10175: 2011
"Investigation of Potentially Contaminated Sites Code of Practice"

CLAIRE/CIEH
"Guidance on comparing soil contamination data with a critical concentration" 2008

Department of the Environment Contaminated Land Research Report
"Sampling strategies for contaminated land" prepared by The Centre for Research into the Built Environment, Nottingham Trent University (Ref: CLR 4) 1994

Environment Agency
"Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination"
(ref: R&D Technical Report P5-066/TR) 2000

Environment Agency
"Model Procedures for the Management of Land Contamination" (ref: CLR11), 2004

Environment Agency P5-080/TR3
"The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils", 2005

UK Water Industry Research (UKWIR)
"Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites" (Ref 10/WM/03/21) January 2011

Water Regulations Advisory Scheme (WRAS) Information and Guidance Note 9-04-03
"Laying Pipes in Contaminated Land" 2002

Frequently asked questions

Why has UUW published supplementary guidance to the 'UKWIR Guidance for the Selection of Water Pipes to be used in Brownfield Sites'?

UUW agrees with the UKWIR Guidance in principle; we have published supplementary guidance to clarify some of the areas in which it will operate.

Does the UKWIR Guidance only apply to 'brownfield sites'?

Yes, the UKWIR Guidance does apply to brownfield sites; in addition United Utilities Water will apply this guidance and the UUW supplementary guidance to any greenfield sites which are potentially affected by contamination.

Who is responsible for completing/ signing the Risk Assessment for Water Pipes (RA)?

This may be the Developer, the Developers representative, or the competent person directing the land assessment. The signatory of the Risk Assessment for Water Pipes (RA) must ensure that all land assessments have been carried out in accordance with current standards and guidelines by or under the direction of a suitably qualified competent person. For water supply applications on land potentially affected by contamination, UUW requires the competent person to be either a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, the Geological Society of London or the Royal Institution of Chartered Surveyors) with relevant experience of investigating contaminated sites or a Specialist in Land Condition (SiLC). This level of competency is intended to promote good practice and high professional standards and is no greater than that required for planning purposes by Local Authorities.

Do we need to agree the number and location of soil samples with the Water Company as indicated by the UKWIR guidance following the Preliminary Risk Assessment (PRA)?

Where a preliminary risk assessment (PRA) highlights the need for a site investigation UUW considers it is a responsibility of the qualified competent person directing the land assessment to determine the location and frequency of sampling. UUW's role would be to confirm that the appropriate choice of pipe material has been made on the basis of the information provided.

What do we do if the pipe route is not known when the Site Investigation report is commissioned?

Where the route of the pipe is not known at the site investigation stage, then any resultant pipe selection needs to take account of any contamination found on the site. Consideration should be given to identifying the route and depth of the pipeline at the site investigation stage to avoid unnecessary testing.

Is it acceptable not to undertake a site investigation and specify the use of barrier pipe which seems to be suitable for all conditions?

Not all brownfield land is contaminated, and because of that a default to barrier pipe is not an acceptable approach to UUW, due to the possibility of higher installation and future maintenance costs. The approach as to whether a site investigation is needed should be risk based. For those sites where land may be affected by contamination appropriate testing shall be undertaken on the ground materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials.

Examples where defaulting to barrier pipe would not be acceptable:

- Where a capping layer (non-contaminated) is introduced within which the pipes will be installed.
- Sites with a potential low risk for contamination.
- Where liquid free phase product (e.g. oil or free solvent layers) is in the ground or groundwater in the vicinity of water pipes.
- Where the route of the pipe could be diverted to another suitable location free from contamination.

Are UUW employees who will assess the Design Proposals for contaminated sites suitably qualified?

It is the role of the Developer's suitably qualified competent person to deal with or direct the assessment of land. UUW's role is to assess the Risk Assessment for Water Pipes and supporting Site Assessment Report (SAR) which is provided with any new water supply application (ie. it has been provided in the correct format, proposals for pipe selection are included, the methodology is in line with the UKWIR Guidance and UUW Supplementary Guidance, it has been directed by a suitably qualified competent person etc.). If UUW do need to provide assistance or information in deciding pipe materials then the assessment would be carried out under the direction of a suitably qualified competent person.

What happens to existing PE that is in the ground under the "old" guidelines?

The latest UKWIR guidance and UUW's supplementary guidance are intended to be used to decide what pipe materials will be used for new water mains and services. It will have no effect for developers with regard to any parts of UUW's existing network.

Will the Developer be required to submit a fully completed Risk Assessment for Water Pipes (RA) and supporting Site Assessment Report (SAR), including pipe material recommendation, for both the option of a mains requisition application and the option of a self-lay application?

Yes, UUW expect the 'Developer', as defined in UUW Supplementary Guidance, to submit a Risk Assessment for Water Pipes (RA) and supporting Site Assessment Report (SAR), including pipe material recommendation, in respect of any water pipes being installed on the development irrespective of who is to install them.

Does Table 1 in UUW's Risk Assessment for Water Pipes (RA) replace any of the tables to be completed in the Site Assessment Report (SAR) as required in the UKWIR Guidance?

UUW does not consider Table G1 and Table 3.1 of the UKWIR Guidance to be a definitive guide for assessing total concentrations. Table 1 in UUW's RA replaces Table 3.1 of the UKWIR Guidance.

Have any other Water Companies adopted the UKWIR Guidance yet?

You will need to contact the water company concerned if you are intending to install water pipes outside UUW's licensed area.

United Utilities
Water for the North West

About us

United Utilities is the North West's water company. We keep the taps flowing and toilets flushing for seven million customers every day. From Crewe to Carlisle, we work hard behind the scenes to help your life flow smoothly.

United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Warrington WA5 3LP.
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LRA1A-11/19v0

11/19/SD/8483f-1

Risk assessment for water pipes (RA)

United Utilities
Water for the North West

The risk assessment for water pipes will help you choose appropriate materials for your development. We are happy to deal with a risk assessment for water pipes in advance of any formal application for a new water supply.

If you need any help completing the form please call us on **0345 072 6067.**

Section 1: Development details	
Development name *(if it has one)*	
Development address	Land off Amberley Drive Wythenshawe M23 2RW
OS Grid reference *(mid point)*	381162E, 387950N
Developer's name	John Southworth Builders Ltd
UUW reference number *(for UU use only)*	

Please provide details below of the current and historical use of the site and adjacent sites.
If your supporting information has details of the current and historical site use, please reference below the relevant sections of your report.

The earliest maps dated 1876 indicate the site to comprise undeveloped woodland and agricultural land bordering Mill Brook, which extended roughly north-west to south-east through the central section. Greenbrow Lane extended roughly north-west to south-east across the north-eastern section of the site.

The surrounding area originally comprised undeveloped rural / agricultural land with occasional small field ponds, woodlands and localised residential structures.

By 1960 a section of Mill Brook was culverted at the northern apex of the site. This coincided with the construction of a small bridge providing access across Mill Brook in the central section of the site. Although the site has since remained undeveloped public open space, by this time the area immediately surrounding the site had been developed for residential housing.

Section 2: Preliminary risk assessment	
Has your desk study and site walkover identified any land potentially affected by contamination?	☑ Yes ☐ No

If the site is potentially affected by contamination but you have not completed any intrusive site investigation please provide details below of the rationale behind the intended pipe selection.
If your supporting information has details of the rationale behind the intended pipe selection, please reference below the relevant sections of your report.

The following have been undertaken by WML Consulting Ltd

Phase 1 Desk Study and Preliminary Geoenvironmental Assessment, Reference 8538/G/01A, dated December 2018, updated March 2025.

Phase 2 Geo-environmental Investigation and Assessment, referenced 8538G-WML-00-XX RP-G-0002A, dated May 2025.

Addendum Soils Testing, referenced 12765G/TPB/SCS, dated July 2026.

The report included chemical anlyses of the soils across the full site area.

Section 3: Intrusive site investigation

Have you completed any intrusive site investigation?	☑ Yes ☐ No
Have you completed any none intrusive site investigation?	☐ Yes ☑ No
Date(s) when the site investigation(s) undertaken	15 03 2019 01 07 2026 D D M M Y Y Y Y
At what level has groundwater been encountered?	1.15 metres below ground level or ☐ Not encountered

Table 1 (Pipeline Selection Risk Assessment Summary (PSRAS)) below classifies testing required where the preliminary risk assessment has identified land potentially affected by contamination. Please provide details below of any test groups which have not been tested and the rationale for not testing.

If your supporting information has details of the rationale behind not testing any particular test groups, please reference below the relevant sections of your report.

The site is Greenfield and has no historical development, as such risks from hydrocarbons, SVOC's/VOC's.

If the intrusive site investigation has identified concentrations above the PE threshold (see PSRAS) and your intended pipe selection is PE. Please provide details below of the rationale behind the intended pipe selection.

If your supporting information has details of the rationale behind the intended pipe selection, please reference below the relevant sections of your report.

NA

Section 4: Site remediation

Please provide details below of any site remediation (which may include a change in site levels) already completed.

If your supporting information has details of the site remediation already completed, please reference below the relevant sections of your report.

None

Has the PSRAS (Table 1) been completed using appropriate data after remediation?	☐ Yes ☐ No ☑ N/A

Please provide details below of any proposed site remediation and an analysis of whether this will affect your intended pipe selection.

If your supporting information has details of any proposed site remediation and whether this will affect your intended pipe selection, please reference below the relevant sections of your report.

Removal of any localised hotpsots encounteerd during the general site strip.

Section 5: Final use of site

Please provide details below of any chemicals (including fuel) to be stored on site and any other future contamination risks which may affect your intended pipe selection.

If your supporting information has details of potential contamination risks which may affect your intended pipe selection, please reference below the relevant sections of your report.

None anticipated due to the residential nature of the end use.

What water pipe materials are intended to be used on site?	☑ PE ☐ PE Barrier Pipe Type A ☐ PE Barrier Pipe Type B Other *(please specify):* x

Section 6: Additional information

Please use the section below to provide any additional details to support your intended pipe selection.

Not Applicable

Section 7: Risk assessor

Name and relevant qualifications of person directing the risk assessment for water pipes	Sam Seddon BSc (Hons), BA (Hons), MSc, EurGeol, CGeol, FGS
Name and address of risk assessor's company	Third Floor South, Metropolitan House Station Road Cheadle Hulme Cheshire SK8 7AZ
Date risk assessment performed	09 10 2026

Section 8: Declaration

I confirm I have completed this form and provided supporting information in accordance with 'UKWIR Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' and UUW's Supplementary Guidance. I also confirm that if any further site investigation is needed and carried out, I will be required to submit an additional Risk Assessment for Water Pipes with the relevant supporting information.
I understand that failure to supply any of the required information may delay my application being processed.

Name	Samantha Seddon	Company	WML Consulting.ltd
	0614820600		31 03 2026

Telephone Date D D M M Y Y Y Y

Please email the completed form and supporting information to **DeveloperServicesWater@uuplc.co.uk** or post to us at United Utilities Water, Developer Services, Second floor Grasmere House, Lingley Mere, Warrington WA5 3LP.

United Utilities
Water for the North West

About us

United Utilities is the North West's water company. We keep the taps flowing and toilets flushing for seven million customers every day. From Crewe to Carlisle, we work hard behind the scenes to help your life flow smoothly.

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Table 1 - Pipe selection risk assessment summary (PSRAS)

1. Testing must be undertaken on the materials within which the pipes are to be laid, whether that be existing ground materials, remediated materials or imported capping materials. Please use the appropriate testing data to complete Table 1 below.

2. If more than one pipe selection is being made, for example, for pipes in different areas of a large site, a completed PSRAS is required for each selection.

What materials have been tested to populate Table 1 below?	☑ Existing ground materials ☐ Remediated materials ☐ Imported capping materials

All concentrations in mg/kg

Test Group	Testing Required?	PE threshold	Metal Pipes/ Barrier Pipe	Laboratory Detection Limit	Testing UKAS accredited Y/N	Maximum concentration at proposed pipeline depth *See Note [2]*	Maximum site concentration *See Note [3]*	Locations and depths where concentrations exceed proposed pipeline threshold
Total VOCs	Where Preliminary Risk Assessment (PRA) has identified land potentially affected by contamination	0.5	Pass	NA	NA	NA	NA	NA
Total BTEX & MTBE		0.1	Pass	NA	NA	NA	NA	NA
Total SVOCs (excluding PAHs and those substances marked with an *)		2	Pass	NA	NA	NA	NA	NA
EC5-EC10 aliphatic and aromatic hydrocarbons		2	Pass	NA	NA	NA	NA	NA
EC10-EC16 aliphatic and aromatic hydrocarbons		10	Pass	NA	NA	NA	NA	NA
EC16-EC40 aliphatic and aromatic hydrocarbons		500	Pass	NA	NA	NA	NA	NA
Phenols* (from SVOC analysis)		2	Pass	NA	NA	NA	NA	NA
Cresols and chlorinated phenols* (from SVOC analysis)		2	Pass	NA	NA	NA	NA	NA
Ethers*	Only where identified	0.5	Pass	NA	NA	NA	NA	NA
Nitrobenzene*		0.5	Pass	NA	NA	NA	NA	NA
Ketones*		0.5	Pass	NA	NA	NA	NA	NA
Aldehydes*		0.5	Pass	NA	NA	NA	NA	NA
Amines		Fail	Pass	NA	NA	NA	NA	NA
Corrosive	Conductivity, Redox and pH	Pass	*See Note [1]*	NA	NA	NA	NA	NA

Note [1] Threshold: For wrapped steel, corrosive if pH<7 and conductivity > 400µS/cm. For wrapped ductile iron corrosive if pH<5, Eh not neutral and conductivity > 400µS/cm. For copper, corrosive if pH<5 or >8 and Eh positive.

Note [2] Water pipes are normally laid at 0.75-1.35m below finished ground level.

Note [3] Also state if liquid free product is present in soil or groundwater.

APPENDIX 04

Soil Assessment Criteria

Site Specific Assessment Criteria for Residential (with homegrown produce) assuming a 1% SOM for Hydrocarbons

Contaminant	Assessment Criteria for Residential (mg/kg)
Metals	
Arsenic	37
Boron	290
Cadmium	26
Chromium III	910
Chromium VI	6
Copper	2,400
Lead*	200
Mercury	1.2
Nickel	130
Selenium	250
Vanadium	410
Zinc	3,700
Non – Metals	
Phenol	120
Polyaromatic Hydrocarbons (PAH)	
Benz[a]anthracene	7.2
Benzo[a]pyrene	2.2
Benzo[b]fluoranthene	2.6
Benzo[ghi]perylene	320
Benzo[k]fluoranthene	77
Chrysene	15
Dibenz[ah]anthracene	0.24
Fluoranthene	280
Indeno[123-cd]pyrene	27
Naphthalene	2.3
Pyrene	620

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* Where not included in the S4UL's criteria for a limited number of contaminants, namely lead, have been derived by DEFRA in their document entitled SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, April 2014.

Contaminant	Criteria for Residential End Use (mg/kg)
Volatile Organic Compounds (VOCs)	
Benzene	0.087
Ethylbenzene	47
Toluene	130
Xylene	56
1,2-Dichloroethane	0.0071
1,1,1-Trichloroethane	8.8
Tetrachloroethane	1.6
Tetrachloroethene (PCE)	0.18
Tetrachloromethane	0.026
Trichloroethene (TCE)	0.016
Trichloromethane	0.91
Vinyl Chloride	0.00064
Semi-Volatile Organic Compounds (SVOCs)	
1,2-Dichlorobenzene	23
1,4-Dichlorobenzene	61[f]
1,2,4-Trichlorobenzene	2.6
Hexachlorobenzene	1.8 (0.2)[vap]
Total Petroleum Hydrocarbons (TPH)	
Aliphatic C5-6	42
Aliphatic C6-8	100
Aliphatic C8-10	27
Aliphatic C10-12	130(48)[vap]
Aliphatic C12-16	1,100(24)[sol]
Aliphatic C16-35	65,000(8.48)[f,sol]
Aliphatic C35 - 44	65,000(8.84)[f,sol]
Aromatic C5 – 7 (benzene)	70
Aromatic C7 – 8 (toluene)	130
Aromatic C8-10	34
Aromatic C10-12	74
Aromatic C12-16	140
Aromatic C16-21	260[f]
Aromatic C21-35	1,100[f]
Aromatic C35 - 44	1,100[f]

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