



Contaminated Land Phase One Desk Study for Proposed Residential Dwellings at, Foxhill Farm, Foxhill Lane, Halewood, L26 4XG.

Prepared for

PWA Planning Ltd
2 Lockside Office Park,
Lockside Road,
Preston,
PR2 2YS

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Summary

This report consists of a phase one contaminated land desk study produced in support of planning application for a residential property on land at Foxhill Farm, Foxhill Lane, Halewood, L26 4XG.

Following the site walkover and review of the available information it has been concluded that no contamination exists which poses a significant risk of significant harm to the identified receptors either on site or in the immediate vicinity, with the exception of the potential presence of asbestos within Cementous corrugated sheeting. This can be adequately dealt with during the demolition phase of the project without presenting further risk of contamination to the site. Therefore the site is considered safe and suitable for the intended use.

The report further recommends that a watching brief is maintained throughout the construction of the new dwellings and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary.



Contents

Summary.....	2
Introduction.....	4
Aims and Objectives of the report	4
Scope of works	4
The Site:	5
Current Site use:	5
Research	5
Details of Research	5
Site History	6
Regulatory Information	8
Geology and Hydrogeology	10
Hydrology	10
Environmental Sensitivity.....	11
Site Walkover.....	12
Conclusions.....	14
Potential Contaminants.....	14
Receptors and Pathways	14
Conceptual Model	16
Recommendations.....	17
Figure 1 – Aerial Photograph.....	18
Appendix 1 – Groundsure Data	19
Appendix 2 – Historical Mapping	20
Appendix 3 – Site Walkover Photographs.....	21
Appendix 4 – February 2020 walkover photographs	45
Appendix 5 – July 2022 walkover photographs.....	65
Appendix 6 - Report limitations and exclusions	97
Basis of Risk Assessment	97
Limitations and Exceptions of this Report.....	97



Introduction

Martin Environmental Solutions has been commissioned, to carry out a phase one contaminated land desk study report in relation to a proposed residential development on land at Foxhill Farm, Foxhill Lane, Halewood, L26 4XG.

This report consists of a revision and update following an additional walkover survey and review of the site usage.

Aims and Objectives of the report

The aims and objectives of this report are as follows:

- Assess the likelihood of contamination affecting the site,
- Identify any likely receptors to be affected by the potential contamination,
- Identify the pathways by which the receptors will be exposed to any potential contamination,
- Identify any areas where further investigation will be required.

Scope of works

This report has been written in line with the 'BS 10175: 2011+A2: 2017 Investigation of potentially contaminated sites – Code of Practice' and 'The Model Procedures for the Management of Land Contamination, CLR11'.

The scope of this report covers the phase one desk study only. It will look at relevant information on: -

- the history of the site and surrounding area,
- the current use of the site and surrounding area,
- the geology and hydrogeology of the area,

A site walk-over survey has been undertaken in addition to consultations with the existing site owner, to identify any potential contamination issues.

Evaluation of the above information will be used to construct an initial conceptual model as appropriate, with the identification of any additional investigations that may be required.



The Site:

Site Address: Foxhill Farm, Foxhill Lane, Halewood, L26 4XG.

Grid reference: 345097; 386843

An aerial photograph of the site is included in Figure 1.

Current Site use:

The site is currently a roughly rectangular area covering approx. 0.88 ha. The site is predominantly disused, having formerly been a dairy farm, evidence of wood chipping operations exists on site, but this has now ceased. A number of buildings including the former farm houses remain and the surrounding area is agricultural.

Research

Details of Research

This report has been based on information gathered from a number of reputable sources, covering details:

- on the historic and current use of the site,
- any known waste disposal activities in the area,
- any regulated industrial activities within the vicinity of the site including recorded industrial accidents,
- on the geology, hydrogeology, hydrology of the area,
- identification of any environmentally sensitive sites,
- any natural hazards.

Principle sources of this information have been:

- environmental data from Groundsure Limited
- the Local Planning Authority,
- historic maps (Groundsure Ltd),
- site walk-over survey and discussion with the current owners.



Site History

Information on the historic uses of the site has been obtained from historic mapping information (Appendix 2), and environmental data from Groundsure Limited.

Mapping Year	Changes on Site	Changes off Site
1849	The site is formed by a number of fields and in the western corner is 'Nun's House' the area currently occupied by the farm house.	The area is predominantly agricultural. A few farms and houses are scattered around the area. Halewood Brewery is located 500m south of the site. A stream runs from the north down the east of the site approx. 400m away.
1891-93	No Change, the larger scale map identifies the buildings as 4 distinct buildings the two houses, the adjoining two storey barn and a further detached single storey barn.	No Significant Changes. There are two ponds within 250m of the site, the northern one is still present today.
1905-07	The site is identified as Foxhill Farm. The buildings on site have been extended and joined together with another barn, Along the centre of the site is another long barn.	No Significant Changes, the farms in the area have increased in size.
1925-27	A further barn is shown towards the southern boundary of the site and a small orchard is shown to the southeast corner. The central Barn has been reduced in size.	No Significant Changes
1938	No Change	No Significant Changes
1956-58	The barns to the southern boundary are no longer present. A pump is shown by the farm house.	No Significant Changes, the house to the immediate south of the site has been built.
1967	No Change	No Significant Changes
1977	No Changes visible	Bridgefield Farm to the southeast is no longer present, the adjacent pond is not shown and a school has been built 350m away to the southeast. A substation is shown at the school, to the south east.

		Halewood continues to expanded in the south.
1989	A large 'L' shaped barn has been built to the north eastern corner (Still present)	A clump of trees in the field to the northeast is now shown as a pond and is still present today.
1990-93	Two tanks are shown on the map, one to the north and the other to the southeast of the site. the central building is shown as being wider than original and the 'L' shaped barn is identified as four separate structures on the more detailed mapping.	No Significant Changes.
2002-2020	The central barn is reduced in size by 2009 and the tanks on site removed.	No Significant changes shown. Aerial photographs identify the school as disappearing between 2000-2003 and the site is converted into housing in 2016.
2020-22	No change, wood chipping operations have ceased on site, buildings have fallen further into disrepair	No significant changes



Regulatory Information

Relevant information obtained from the Groundsure report (Appendix 1) is summarised below.

No permitted activities have been identified within 500m of the site as defined in the Environmental Permitting (England and Wales) Regulations 2010 or previous legislation.

Ten discharge consents have been identified within 500m of the site. This includes one consent on site for treated sewage effluent. The remaining nine consents all relate to the water company sewage discharge/storm overflow discharge and are located 458m to the north of the site. These are unlikely to impact on the site.

No pollution incidents have been identified in the area.

14 Landfill records have been found. All but two of these are identified as Green's Bridge Farm with the nearest point being 666m away from the site in the east. The Farm accepted inert material. The other two sites relate to Lee Park Golf Course, inert waste located 852m northwest and the Sewage Woolton at Liquid Sludge 1314m west. No new sites have been identified from a review of the Environment Agency's public register.

Three further waste sites have been identified the nearest 1361m northeast consisting of a composting facility at a nursery.

The above sites will not impact on the development.

No current land uses have been identified which are potentially contaminative within 250m of the site.

Historical potentially contaminative land uses have been identified within 250m of the site from the purchased information; most of these have been identified from the historical mapping and include:

The two tanks on site

A further Tank at Bridgefield Farm in 1938

The identified ponds in the area

The above sites, given the age and distance from the site are unlikely to impact on the proposed site,



A review of the area and available information has confirmed there have been no significant changes to the surrounding area.



Geology and Hydrogeology

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Wilmslow Sandstone Formation, overlaid with Till, Devensian, Diamicton. This has been confirmed by nearby historic borehole records.

There is no known mining activity identified in the immediate area, and according to the coal authority website the site is located on the edge of a mining are.

The information obtained on the hydrogeology of the area identifies the site as having a Principle aquifer capable of providing a high level of water storage and may support water supply/river base flow on a strategic scale. in the bedrock, with a Secondary undifferentiated aquifer in the superficial layer as well.

13 groundwater abstraction licenses have been identified, covering 7 sites, the nearest of these is 759m southeast at Green Bridge Lane pumping station and related to United Utility operations. The remaining sites are over 1372m away and are al linked to United Utility operations with the exception of Lee Park Golf Course water used for drinking, cooking, washing and irrigation and Everton Football Club water used for irrigation.

A further four surface water abstraction licenses have been identified, all located 1471m north and used by Belpool Developments Ltd for Irrigation purposes.

The site is located within a zone 3 Source Protection Zone.

The Groundwater vulnerability is described as L soils in which pollutants are unlikely to penetrate the soil layer.

Hydrology

There are a number of watercourses identified within 500m of the site. The nearest is a small stream to the southern boundary of the site which flows towards the northwest and then into the stream in the north. The nearest 'River' is located 425m southeast at Netherley Brook.

The site is not within a Zone 2 or Zone 3 floodplain, and the risk of flooding is classified as low.



Environmental Sensitivity

The site is located within a Nitrate Vulnerable Zone and the Liverpool Manchester and West Yorks Greenbelt.

Four local nature reserves are identified in the area all over 2Km away from the site

The site is, in its current state, unlikely to impact on these designated sites.

The property is in an area identified as having less than 1% of properties above the action level of 200 Becquerel's per cubic metre, based on specific property search. Radon protection measures are not required in line with BR211.

No additional natural hazards have been identified & the site has very low/negligible risk of shrink swell, running sand, with a moderate risk of compressible ground.



Site Walkover

A site walkover was undertaken on the 13th March 2019 and confirmed much of what had already be identified from the information obtained. The photographs in Appendix 3 provide some indication of the current layout and condition of the site.

The site is accessed via Foxhill Lane, with the 'drive' running past the farm houses to the west and into the site. The farm houses consist of two storey rendered buildings with slate roofs. To the rear are the remains of a stone two storey barn and beyond two single storey brick barns with slate roofs. Sides of the former use as animal housing (stables and cow shed) remain within the barns, with a concrete floor. The barns are currently used for the storage of inert material.

A double skinned elevated heating fuel tank is located within the two-storey barn, no signs of any leakage are present.

Behind the barns is a small breeze block/concrete floor shed containing a pump/motor. The remains of a concrete above ground slurry tank are located behind this.

The farm yard is concreted throughout.

The central barn area was the previous milking parlour and extended across the yard as can be seen on the historical mapping. This was reduced in size, to accommodate the last business on the site a tree surgeon/horticulture business which utilised the barns to produce wood chip. The central area now consists of a concrete base, metal frame and breezeblock walls and a metal roof.

To the rear (north) of the site are located a number of metal storage containers and a row of two storey barns. The first from the west is open sided has a concrete base and breeze block lower walls with cement corrugated sheeting to the upper section and roof. The floor was in a good condition and there were no signs of any spillages.

The next barn was split in two, constructed from a metal frame, metal sheeted walls and roof. The rear section had wooden planks for walls. Above breeze block lower section. Evidence that the building had been used for the processing of wood chip remained.

Moving down the eastern boundary the remains of two large barns are present, both following the sites concrete flooring with a mixture of metal and Cementous corrugated walls, the second barn only had the frame remaining. A couple of empty storage containers were located behind it.



The central slurry tank has been removed some time ago and the pit adjacent to it filled in. and concreted over.

The southern section of the site is overgrown with evidence of a MOT base to the southeast corner. The are reportedly being once used for growing vegetables.

No signs of any contamination, dead or distressed vegetation were identified during the walkover survey with the exception of some broken Cementous corrugated sheeting over the concrete base by the barns.

A further site walkover was conducted on the 1st February 2020, photographs in Appendix 4 provide an updated view of the site. There have been no significant changes to the site since the original walkover and report.

No additional potential sources of contamination have been identified.

An addition site walkover has been conducted on the 22nd July 2022, photographs are included within Appendix 5, and provide a view of the current situation on site. There has been little change. Wood chip operations within the yard have now ceased and the buildings have deteriorated further.



Conclusions

Potential Contaminants

Following a review of the information gathered on the history of the site and the surrounding area and following the site walk-over survey there are no contaminants identified on or off site that are likely to present a significant possibility of significant harm to any identified receptor.

The exception to this is the potential asbestos containing material from the roofs/walls of the barns.

Receptors and Pathways

Potential receptors which may be affected by any unknown contamination on site will include:

- Construction workers who are likely to be affected by any potential contamination as they will initially be working in the ground and are likely to be the ones who unearth any potential contaminants.
- Future users of the site, including residents, staff and visitors to the site. For the purpose of evaluating any effects from any contamination found during any intrusive investigation future users/visitors to the site should be regarded as the 0-6-year-old female child.
- Any building on site e.g. foundations which may be attacked by any contaminants in the ground or services.
- The underlying groundwater which may be contaminated by migrating pollutants present on the site. There is also the potential for further pollution of the groundwater or the watercourse from disturbing any potential contaminants on site.

The pathways by which these receptors may be exposed to any unforeseen potential contamination will include:



Construction workers

- Inhalation, of gases or vapours released during ground work or fine particles.
- Ingestion of the contaminants, principally from cross contamination with contaminated soil and inadequate hand washing before smoking and eating.
- Absorption through the skin following contact with contaminated soil.

Future users and visitors

- Inhalations of gas/vapours or fibres, particularly if these are allowed to enter the new structures through the ground and build up in an enclosed area.
- Ingestion of contaminants, through the ingestion of contaminated soil from the garden area via direct contact, e.g. playing in the garden.
- Absorption of contaminants from dermal contact with contaminated soil.

Buildings

Contaminants on site have the potential to affect the foundations to the new building or the services supplying it.

Watercourses

As discussed above, if they exist on site, there is a potential for any contaminants to migrate through the ground into the groundwater and aquifer or via run-off into the watercourse.

Adjacent land uses

The site is surrounded by agricultural fields, if present contaminants on site could migrated off site through ground water or surface water run-off. In addition, the wind may blow some contaminants off site.



Conceptual Model

The table represents a basic conceptual model. It highlights the potential sources of pollutants identified from the gathered information, and potential pathways in which any contaminants could reach the identified receptors.

Pathway	Description	Identified sources	Receptor at risk	Likelihood
1	Run off and seepage into groundwater from any spillages	-	Watercourse/ Environment	V. Low
2	Migration of gases into the building.	-	Future users	V. Low
3	Inhalation of gases/ vapours outside	-	Construction workers/future users	V. Low
4	Inhalation of fine particles	Asbestos	Construction workers/future users	Medium
5	Direct ingestion of contaminated soil	-	Construction workers/future users	V. Low
6	In-direct ingestion of contaminated soil	-	Future users	V. Low
7	Absorption via direct dermal contact with contaminated soil	-	Construction workers/future users	V. Low



Recommendations

As a result of the investigation into the historical use of the site and surrounding area no sources of contamination have been identified on or off site which present a significant possibility of significant harm to any of the identified receptors, other than a potential for asbestos fibres to have been released from the corrugated Cementous material used within the roofs and walls of the barns.

The site is concreted over and this will need to be removed before any development takes place. As such as part of the site clearance all corrugated Cementous material should be carefully removed from site and the site effectively cleaned prior to the break-up of any concrete base. This will ensure that should asbestos fibres be present that they will be removed prior to exposing the ground beneath the concrete base, thus prevent contamination of the site.

It is further recommended that a watching brief is maintained throughout the construction of the new building and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary and the local planning authority informed of the findings.

Figure 1 – Aerial Photograph





Appendix 1 – Groundsure Data



Appendix 2 – Historical Mapping

Appendix 3 – Site Walkover Photographs

Site access drive and farm house



The remains of the barn







The single storey barns to the rear











The pump tot e rear of the barns



The old tank and view across the site from northwest corner along the boundary to the east



The first of the northern barns





The second barn along the northern boundary





The second section of the barn





The remains of the barns along the eastern section





Looking back to the west of the site



The

eastern boundary from the south



Looking east to west along the southern boundary



Looking back east



The central Barn









Appendix 4 – February 2020 walkover photographs

Entrance to site





Remains of barn behind farm house, with double skinned fuel tank





Single storey brick barn to rear of farmhouse







Area behind the single storey barn





The rear boundary of the site















The southeast boundary



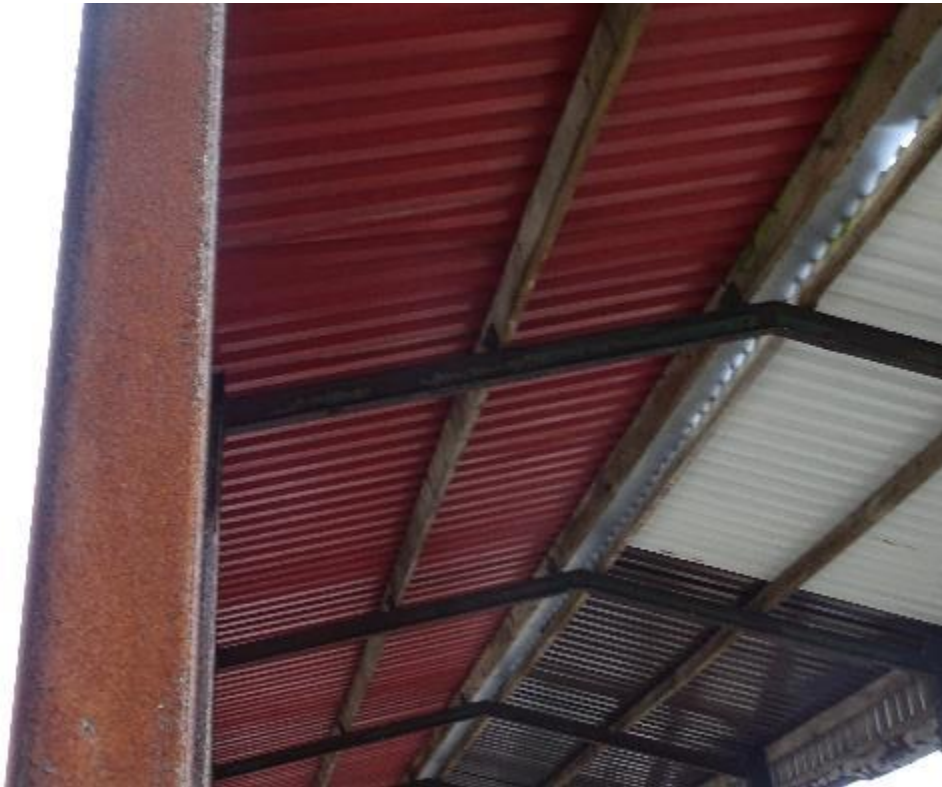




The central area and barn







The southern section of the site





Appendix 5 – July 2022 walkover photographs

Entrance to the site and the Farm house





The second house to the south.



The former stone barn to the rear, with concrete base and empty unused fuel store









The stone barn to the rear, north of the house and site.











Behind the stone barn, north corner of the site.









The north rear boundary of the site

















The building to the eastern boundary









The area to the south of the site, now overgrown









The building in the centre of the site















Appendix 6 - Report limitations and exclusions

Basis of Risk Assessment

The methods used follow a risk-based approach with the potential risk assessed using the 'Source – pathway – receptor pollution linkage concept.

Limitations and Exceptions of this Report

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The conclusions and recommendations of this report are based on the development described, for any other development the report may require revision.

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The report should be read in its entirety, including all associated drawings and appendices.

Martin Environmental Solutions cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

This report does not comprise a geotechnical assessment of the strata underlying the site.

Any borehole data from the British Geological Survey sources is included on the following basis: 'The British Geological Survey accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation'.

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Any risks identified in a Phase I Desk Study Report are perceived risks. Actual risks can only be assessed following a physical investigation of the site.

The findings of this report are based on finite information obtained from research and consultations. Martin Environmental Solutions cannot guarantee the reliability of all such information and the searches should not be considered exhaustive. The findings of the report may need to be reviewed as any future exploratory investigations progress and in the event that additional archive information becomes available.

Notwithstanding the findings of this study (and any subsequent investigations), if any indication of contaminated soil (visual or olfactory) is encountered at any stage of the development further investigation may be required.



Arboricultural Survey and advice on arboricultural issues are considered to be outside the scope of this report except for their effect on the foundations to the proposed buildings.

Where identification of any species is made, especially invasive plants such as Japanese Knotweed, Himalayan Balsam or Giant Hogweed, this should only be considered as a preliminary assessment and subject to confirmation by a professional Arboriculturist. Martin Environmental Solutions takes no responsibility for failing to identify, or the incorrect identification of, any tree or plant species on site.

Our investigations exclude surveys to identify the presence or indeed absence of asbestos in buildings/infrastructure on site. If asbestos is suspected to be present, we recommend specialists in the identification and control / disposal of asbestos are appointed prior to commencement of any works on site or, if appropriate, purchase of the site. The presence of asbestos on site may have considerable effects on the cost / timescale in developing the site. There is good guidance in relation to Asbestos available on the Health and Safety Executive (HSE) web site.

Whilst a site walkover has been undertaken as part of this report, the survey does not constitute either an asbestos or structural survey and all areas of the site may not have been visited / inspected.