



WHITE HOUSE FARM, READING – LISTER WILDER

Contaminated Land Desk Study Report

JULY 2025

White House Farm, Reading – Lister Wilder

Contaminated Land Desk Study Report

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Site Address

White House Farm
White House Lane
Spencers Wood
Wokingham
RG7 1HR

Client Address

Lister Wilder
White House Farm,
White House Lane
Spencer's Wood
Wokingham
RG7 1HR

When marked as 'Final' above, this report has been written, checked for technical integrity, and approved for issue by suitably experienced and trained geoscientists working to best practice. If the report is marked as 'Draft' it should not be relied upon.

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EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Instructions / Brief	ACS Testing Ltd (ACS) was instructed by Bourne Valley Associates, acting on behalf of Lister Wilder Ltd (the Client) in May 2025 to conduct a desk-based investigation and assessment to identify possible contamination constraints to the development of the Site comprising White House Farm, Reading, RG7 1HR. Within the Phase 1 desk study site assessment, a preliminary ground gas risk assessment has been carried out to determine whether there is a potential risk from ground gas associated with a historical landfill site to the west of the Site.
Proposed Development	It is understood that planning permission has not yet been sought for the proposed development. However, current proposals include the expansion and updating the facilities at Lister Wilder HQ, to include demolition of buildings and replacement with workshop/store/office building, improved access, additional hard standing and associated landscaping and boundary fencing.
Current Site Conditions	A site walkover survey was carried out by an ACS Geo-Environmental Engineer on 13th June 2025. The Site (Grid Reference 470922 165967) is located approximately 7.1km south of Reading town centre. The Site was observed to be irregular in shape, covering an area of approximately 2.9 hectares. It can be accessed from the south along White House Lane and from the west off Whitehouse Farm (road). The Site was broadly level, with minor southward sloping observed in the western part, and the ground surfacing varying throughout. Areas of the Site can be defined as follows: ▶ The Central Area comprises the two hardstanding compound areas used for vehicle and machinery storage with various other miscellaneous items stored here. ▶ The Western Area comprises several areas of open hardstanding, storage areas and with numerous structures with varying purposes including workshops for vehicle and machinery servicing and repair. ▶ The Northern and Eastern Areas comprises an area of open, overgrown grassland with the remains of historic fences.

Environmental Setting	There is no Made Ground or Artificial Ground recorded to be present at the Site. However, Made Ground is likely to be present on-site associated with historic Site development. River Terrace Deposits is shown underlying the majority of the Site consisting of sand and gravel, locally with lenses of silt, clay or peat'. These deposits are identified as a Secondary (A) Aquifer, capable of supporting local water supplies and base flow to rivers. The underlying bedrock geology includes the London Clay Formation (Clay), classified as an Unproductive Aquifer due to its low permeability. The nearest surface water body is an inland stream located 126m W of the site. The Site is not located within a Groundwater Source Protection Zone, nor are any groundwater, surface water or potable abstraction licences recorded within 1km. The Site is situated within the vicinity of historically worked and infilled areas, with numerous past features including brickworks, clay pits and unspecified workings, and ponds, recorded within the Site's immediate surroundings. The Council records indicate that an adjacent landfill was filled between 1968 and 1973, with a combination of waste – inert, industrial, commercial and household. Another historical landfill is recorded by GroundSure 171m N of the Site. There is no further data provided; however, historical mapping indicates this landfill to be recorded at a historical clay pit, which was potentially infilled by 1972/73.
Potential Sources of Contamination	<u>On-Site</u> ▶ Made Ground associated with the Site's redevelopment. ▶ Historical use of the site for farming (White House Farm) and potentially as a scrap yard. Farming activities are likely to have been carried out until the late 1960s. For the scrap yard, GroundSure indicate the activity to possibly have occurred in the 1990s. ▶ Use of parts of the Site as a vehicle and machinery storage areas, vehicle/machinery servicing and repair workshops. Storage of vehicle/machinery, oil IBCs & containers and used vehicle/machinery parts including batteries. <u>Off-Site</u> ▶ Brickworks, clay pits and subsequent landfill activities carried out in adjacent areas to the west of the Site. The Council and Groundsure records indicate that this area was filled between 1968 and 1973, with inert, industrial, commercial and household waste. ▶ Brickworks, clay pits and further landfill activities carried out to the northwest and west of the Site. The landfill activities are recorded by GroundSure 171m N of the Site at a historical clay pit. ▶ Farming activities and waste exceptions undertaken at White House Farm, 30m to the south of the Site.

**Conclusions and
Recommendations**

A **Moderate to Moderate/Low Risk** is perceived to human health and controlled waters receptors from historical and current on-site activities including historical farming activities, possible scrap yard and current commercial use, vehicle and machinery parking and storage plus several vehicle maintenance bays. Also, from storage of oil storage tanks & containers and used vehicle/machinery parts including battery storage containers. Most areas currently used for commercial activities including workshops are hard surface areas and are not considered a high contaminative risk to current site users or controlled waters but should be investigated if the Site is redeveloped.

A **Moderate/Low Risk** is perceived in relation to the potential for off-site generation of hazardous ground gases relating to the historic landfills in close proximity to the Site.

It is addressed that the majority of infilled pits are shown to have been infilled by the early 1970s and the landfill activities recorded for the landfill immediate west were reported from 1968 to 1973. Therefore, the potential risk from significant ground gas generation, which could migrate and represent a significant risk to the Site is unlikely. Furthermore, ground gas monitoring carried out for two adjacent sites indicated that ground gas levels recorded from boreholes by the two investigations were not significant. Both investigations concluded that there was not a risk from ground gas to new buildings/enclosed structures the proposed developments.

However, the above conclusions are based on data collected from investigations to the south and east of the Site, and further away from the historical landfill sites. Given the potential severity of consequences should ground gas risks be underestimated, proximity to the historical landfill, and the absence of monitoring data from the immediate development area, ground gas monitoring is recommended to support a robust, site-wide risk assessment.

A **Low Risk** is perceived from the historical landfills from potential migration of contaminants via leachate off-site to the Site through permeable strata and/or groundwater.

A **Moderate/Low Risk** and a **Low Risk** are perceived from ground gases and/or contaminant migration from off-site farming activities and waste exceptions at White House Farm, 30m south of the Site.

An intrusive site investigation is therefore recommended to assess soil quality and inform health risk assessments for future development. This should include targeted soil sampling and ground gas monitoring to confirm the gas regime and support any required protection measures in line with BS 8485.

Other Considerations: This Desk Study has identified materials within some buildings which may contain asbestos. Prior to demolition works, an asbestos survey should be undertaken for the Site by an Asbestos Specialist Surveyor. All materials containing asbestos should be handled and disposed of in accordance with the current asbestos regulations CAR 2012

1 INTRODUCTION

1.1 Terms of Reference

ACS Testing Ltd (ACS) was instructed by Bourne Valley Associates (the Client) acting on behalf of Lister Wilder Ltd in May 2025 to conduct a desk-based investigation and assessment to identify possible contamination constraints to the development of the Site comprising land at White House Farm, White House Lane, Spencers Wood, Wokingham, RG7 1HR.

Within the Phase 1 desk study site assessment, a preliminary ground gas risk assessment has been carried out to determine whether there is a potential risk from ground gas associated with a historical landfill site to the west of the Site.

1.2 Site Setting

The term 'Site' within this report refers to the land outlined in red shown on the Site Location Plan included in Figure 1.

The Site (centred on National Grid Reference SU 70922 65967) is situated approximately 7.5km south of Reading. Vehicular access to the Site is gained from the south via White House Lane.

1.3 Proposed Development

It is understood that planning permission has not yet been sought for the proposed development. However, current proposals the expansion and updating the facilities at Lister Wilder HQ, to include demolition of buildings and replacement with workshop/store/office building, improved access, additional hard standing and associated landscaping and boundary fencing.

A drawing showing the proposed development layout is included as Figure 3.

1.4 Objectives and Scope

The main objectives of this report are:

- ▶ To establish whether there are likely to be contamination constraints on the proposed redevelopment of the Site.
- ▶ To carry out a preliminary ground gas risk assessment to determine whether there is a potential risk from ground gas to the proposed development,
- ▶ To inform the design of proposed development, or provide reassurance to the Local Planning Authority, regulators, an owner of the Site, or an insurance provider.

The scope of work has included:

- ▶ Collection and reference to readily available existing information; and
- ▶ Development of a preliminary Conceptual Site Model (pCSM) and qualitative contaminated land risk assessment.

The following sources of information have been used in compiling the desk-based study:

- ▶ Groundsure Historical Ordnance Survey Maps.

- ▶ Groundsure GeoInsight Report, geological, hydrogeological and environmental setting information.
- ▶ MAGIC government website – mapping of sensitive environment features of interest
- ▶ British Geological Survey (BGS) map records (Online Viewer and Sheet 268 – Reading)
- ▶ Correspondence with Residential and Environmental Services, Wokingham Borough Council.
- ▶ Readily accessible internet sources.

1.5 Limitations

This report has been prepared in accordance with the instructions received from the Client and includes the findings of a desk-based investigation and assessment conducted by ACS.

The information contained in this report is intended for the use of the Client only, pursuant to the development described above. The recommendations contained herein may not be appropriate to other development proposals.

We confirm that in preparing this report we have exercised reasonable skill and care as would be expected of a suitably qualified and experienced geoscience consultant, working within the limits of the Client's instructions.

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the desk-based investigation. The results of the work should be viewed in the context of the range of data sources consulted.

Any comments made on the basis of information obtained from the Client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by ACS Testing Ltd.

The investigation, assessment, and recommendations in respect of contamination are made solely in respect of the prevention of harm to identified receptors using, where possible, best practice at the date of preparation of the report. Changes in codes of practice and/or legislation, made after preparation of this report could invalidate the conclusions presented within this report.

1.6 Applicable Legislation and Regulation

Part 2A of the Environmental Protection Act (1990) and the subsequent statutory guidance (Defra, 2012) forms the basis for the current statutory regime for the identification and remediation of contaminated land in England and Wales. The 2012 statutory guidance states that the aim of Part 2A is:

- a) To identify and remove unacceptable risks to human health and the environment
- b) To seek to ensure that contaminated land is made suitable for its current use
- c) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable, and compatible with the principles of sustainable development.

A legal definition of contaminated land is stated in the Environmental Protection Act 1990, Part 2A, Section 78A (2). Within this Act contaminated land is defined as:

“Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, or under the land that:

- ▶ *Significant harm is being caused or there is significant possibility of such harm being caused;*
or
- ▶ *Pollution of controlled waters is being or is likely to be caused.*

Contamination within the ground is often addressed via the planning regime. Guidance principles for sites dealt with via planning was outlined in Planning Policy Guidance 23 (PPG23). As part of the government's drive to reduce red tape, PPG23 was withdrawn in 2012 and replaced with more streamlined guidance in the form of the National Planning Policy Framework (NPPF), which was subsequently revised in December 2024. The following references to contaminated land and site investigation are made within the NPPF:

Paragraph 196 – Planning policies and decisions should ensure that:

- a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*
- b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.*

Paragraph 197 - Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rest with the developer and/or landowner.

The NPPF defines a competent person as:

- ▶ *A person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation.*

The Environment Agency guidance: 'Land Contamination Risk Management' (LCRM), acknowledges the need for a tiered risk-based approach comprising of:

- ▶ Tier 1 Assessment: preliminary risk assessment. This will establish whether there are any potentially unacceptable risks arising from contamination at the site.
- ▶ Tier 2 Assessment: comparison of the site contaminant levels with generic standards and compliance criteria including an assessment of risk using a source-pathway-receptor model.
- ▶ Tier 3 Assessment: derivation of site-specific risk assessment criteria and calculation of site-specific clean-up values.

This report has been completed in accordance with the Environment Agency 'Land Contamination Risk Management' (LCRM), the revised NPPF 2024 and the Statutory Guidance to Part 2A of the Environmental Protection Act 1990. British standards include BS5930, BS10175, BS8485 and BS8576.

2 SITE DESCRIPTION

2.1 Site Location

A site walkover survey was carried out by an ACS Geo-Environmental Engineer on 13th June 2025. The Site (Grid Reference 470922 165967) is located approximately 7.1km south of Reading town centre. The Site was observed to be irregular in shape, covering an area of approximately 2.9 hectares. It can be accessed from the south along White House Lane and from the west off Whitehouse Farm (road). The Site was broadly level, with minor southward sloping observed in the western part, and the ground surfacing varying throughout.

At the time of the walkover survey, the Site boundaries were defined as follows:

- ▶ **Northern boundary:** The majority of the northern boundary comprised of a tall hedgerow of semi-mature and mature shrubs. The western portion of the boundary comprised of a wooden fence and concrete block wall with residential caravans beyond.
- ▶ **Southern boundary:** In the southeast, the boundary comprised of a tall hedgerow of semi-mature and mature shrubs with numerous mature trees. A wire post fence was present beyond which was a shallow overgrown gully that was inaccessible. In the south, the boundary comprised of corrugated metal fencing and metal palisade fencing with vehicle barriers. The southwest boundary comprised of existing buildings on site with overgrown vegetation and mature trees. White House Lane is further present along the southern boundary.
- ▶ **Eastern boundary:** To the east, the boundary was marked by a tall hedgerow of semi-mature and mature shrubs.
- ▶ **Western boundary:** To the south, the boundary was marked by existing buildings on site with overgrown vegetation. To the north this boundary was delineated by the border of private residential properties.

Photos taken during the walkover are included in Appendix A.

2.2 Current Site Condition

Given the size and complexity of the Site, which includes a variety of functional zones, it has been divided into three distinct areas to allow for a clearer and more structured description of the observed conditions during the walkover survey. Two further areas are described in this section.

A Site Area Plan illustrating the division of the Site into three distinct areas is included as Figure 2.

The areas are defined as follows:

- ▶ **The Central Area** comprises the two hardstanding compound areas used for vehicle and machinery storage with various other miscellaneous items stored here.
- ▶ **The Western Area** comprises several areas of open hardstanding, storage areas and with numerous structures with varying purposes including workshops for vehicle and machinery servicing and repair.
- ▶ **The Northern and Eastern Areas** comprises an area of open, overgrown grassland with the remains of historic fences.

2.2.1 The Central Area

Access to the central area was gained through the main vehicle and pedestrian access into the Site. This central area was divided into two separate compounds and separated by a metal vehicle barrier. The northern compound is approximately 36m by 55m and the southern compound is approximately 64m by 63m. The primary usage of these areas appeared to be for vehicle and machinery storage and storage of other miscellaneous items of vehicle maintenance and equipment.

The surface covering of the northern compound comprised compacted and loose gravel, some minor spillages (staining of the ground) were encountered during the walkover throughout the two compounds. This area was relatively flat.

The surface covering for the southern compound comprised of a mixture of compacted and loose gravel with areas of concrete slabs or poured concrete. The southeastern side of this compound comprised a vehicle washing bay.

Access was also gained from this compound to a number of vehicle maintenance bays within the structures to the west. Several containers of vehicle oil and a container of used vehicle batteries was present in this compound and stored upon concrete slabs. Within the southeastern corner of the southern compound several large industrial skips were present for the disposal of various types of material.

At the eastern end of each of the northern and southern compounds two large (10m x 36m & 10m x 63m respectively), soil bunds were present, composed of unknown origin soils.

2.2.2 The Western Area

Access to the western area could be gained through the main vehicle and pedestrian access into the Site in the south as well as a large metal vehicle gate along the western boundary of the Site.

Primarily this area of the Site consisted of concrete brick and corrugated metal workshops and showrooms for the businesses present on the Site. Several concrete block and corrugated metal outbuildings and storage warehouses were present around the perimeter and more centrally. Roofing material was locally found to be corrugated metal and bound cement plasterboard. One structure in the west may possibly have asbestos material as the roofing material.

An access track was present in the west of the Site which provided access to fields north of the Site. A portion of this access track was found to be within an area which was outside of the development boundary and is discussed further in Section 2.2.4.

Surface covering was found throughout to primarily be poured concrete of varying condition, there were also localised areas of compacted and loose gravel, and concrete slabs were encountered with some vegetation and grass. Further containers of vehicle oil were encountered throughout this area but appeared to be stored correctly on top of plastic bunds. External covered and uncovered storage areas were also encountered with varying levels of tidiness and with various types of equipment and equipment present.

Overhead cables were present in the west of this area, crossing parts of the external portions of the Site and appeared to be directed to a brick-and-mortar structure off-centre within the western area. Further overhead cables were observed trending along the western boundary of the western area.

further north towards the residential caravans. On the west side of this area a metal cover was encountered, beneath which, it is anticipated, that an underground structure or tank could be present.

A public footpath is also shown to traverse the western boundary of the Site.

2.2.3 The Northern and Eastern Areas

The Northern and Eastern Areas of the Site could only be accessed through the centre of the Site along an access road leading to the north out of the Site. Access was gained off this access road to the east. The area was overgrown with knee high scrub vegetation and grass. A minor small overgrown area was present in the north. The area was relatively flat with minor undulations throughout. This area of the Site was separated from the central area by metal palisade fencing. The remains of a metal fence were found along the northern boundary.

Outside of the northern of the area of the Site in close vicinity to a metal gate several manhole covers and inspection covers for existing drainage infrastructure and septic tanks were encountered.

2.2.4 Area outside of Development Boundary

The location plan for the site (00836-00 – L – Lister Wilder – White House Farm – DV13 – Location Plan) includes an area in the northwest, which aerial imagery shows currently comprises of two residential static caravans, with associated private gardens and a hardstanding external parking area.

However, according to the recent proposed site plan (ref 00836-00 – N – Lister Wilder – White House Farm – Site Plan), Figure 3 of this report, the area described above is not included within the new development proposal. Therefore, due to this, this area of the Site was not included in the site walkover.

Also, the north/south trending portion of the access track, is shown to not be included within plans for development, however, access is to be retained to this track. The new site boundary is shown to be on the eastern side and southern end of this track.

2.2.5 Inaccessible Area

The location plan for the site (00836-00 – L – Lister Wilder – White House Farm – DV13 – Location Plan) also included an area in the southeast, beyond a vehicle barrier and palisade fence, which was inaccessible at the time of the site walkover. This area was heavily vegetated with tall mature trees and dense shrubs and bushes, and access could not be gained to investigate this area. This area also appears to be outside the development proposal.

3 ENVIRONMENTAL SETTING

3.1 Introduction

The following summarises the physical and environmental setting of the Site based on information obtained from British Geological Survey information and from the Groundsure Report, which is reproduced in Appendix B. This information forms the basis of the physical ground model and contaminated land preliminary Conceptual Site Model (pCSM). The data shown below corresponds to records within 250m of the Site boundary.

3.2 Geology

The Groundsure Report, online geological maps and cross-sections from the British Geological Survey (BGS) Online Map Viewer, 1:50,000 scale Sheet 268 (Reading) and 1:10,000 scale sheet SU76NW (Shinfield) have been reviewed. Based on this information, the ground conditions expected beneath the Site are summarised below.

Table 1: Geology

Potentially Infilled Land/Artificial and Made Ground	On-site: There is no Made Ground or Artificial Ground recorded to be present at this Site. However, Made Ground is likely to be present on-site associated with historic Site development. Off-Site: Made Ground indicated 60m S described as 'Artificial Deposits' and 174-190m N described as 'Void', Worked Ground.
Superficial Deposits	On-site: River Terrace Deposits recorded across most of the Site, described by the BGS as, 'Sand and gravel, locally with lenses of silt, clay or peat'. Off-Site: River Terrace Deposits indicated 142m N and 222m SE of the Site.
Bedrock Geology	On-site: The London Clay Formation is indicated to underlie Site and is described by the BGS as: <i>"The London Clay mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay".</i> Off-site: The London Clay formation.
Natural Ground Hazards	Shrink swell clays – Low. Ground conditions predominantly medium plasticity. Running Sands – Very low Compressible deposits – Negligible Collapsible deposits – Very Low Landslides – Very Low Ground dissolution of soluble rocks – Negligible

Bedrock Faults and other Linear Features	There are no bedrock faults or linear features recorded at the Site or within 250m of the Site boundary.
BGS Boreholes	On-Site: No boreholes are recorded. Off-Site: Two boreholes are indicated. <u>Borehole 20673508 – circa 130m SW of the Site</u> 0 – 11 meters below datum (mbd) – Orange/brown clay. 11 – 52mbd – London clay. 52 – 54mbd – Silty clay with bands of shale. 54 – 65mbd – Mottled clays. 65 – 67mbd – Sandy peat with mottled black pebbles. 67 – 81mbd – Thanet sands. 81 – 120mbd – Chalk and flint. A groundwater strike was recorded at 90mbd, with resting water recorded at 94mbd. <u>Borehole 427165 – circa 163m W of the Site</u> The Foudry Bridge Borehole was completed to a depth of 828 m bgl. Records within this log do not start until a depth of 443.32 m bgl. The BGS Borehole logs are included in Appendix C.
BritPits	On-site: none are indicated to be present: Off-site: Two are indicated to be present: <i>Spencers Wood brick works</i> – Multiple entries between 41m and 162m west and north respectively (Ceased). Commodity, clay and shale.
Surface Ground Workings, Mining Extraction & Natural Cavities	On-site: No surface ground workings are identified. Off-site: Groundsure identifies 20 surface ground workings. These include: Brick Works (1900) 2 m N Clay Pit (1900-1909) 2 m N and 126 m N Unspecified Ground Workings (1969) 9m NW, Brick Field (1877) 9 m W <i>Ponds</i> (1877–1983) located 20 m NW, 31 m SW, 38 m SW, 62 m NW and 246 m N Old Brick Works (1909) 21 m N Unspecified Pit (1877-1961) located 21 m NW, 31 m NW and 148 m N Old Clay Pit (1900 – 1909) located 37 m W and 126 m N

	Brick Kiln (1877) 95 m N
Researched Mining	60m S. Mineral Type :unspecified
Radon	The development Site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. It is therefore considered that no radon protective measures are necessary.

3.3 Hydrogeology and Hydrology

The Environment Agency (EA) maps and GroundSure Report have been reviewed and indicate the following hydrogeological features within 250m.

Table 2: Hydrogeology, Hydrology and Environmentally Sensitive Areas

Superficial Geology	On-site: The River Terrace Deposits (majority of the Site) are identified as a Secondary (A) Aquifer. Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Solid Geology	On-site: The London Clay Formation (Clay, Silt, Sand) that underlies the Site is identified as Unproductive Strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
Groundwater Vulnerability	The Secondary (A) Aquifer underlying the Site are classed as having medium groundwater vulnerability, which is defined by: ' <i>Intermediate between high and low vulnerability.</i> ' Bedrock underlying the site is classed as an unproductive aquifer.
Groundwater Source Protection Zones	The Site is not within a groundwater Source Protection Zone (SPZ), nor is there an SPZ within 250m of the Site.
Groundwater, Surface Water Abstraction Licences, Potable Water Abstraction Licences	There are no groundwater, surface or potable water abstraction licences within 250m of the Site.
Water Body Catchments	The Site is within the surface water body catchment of the River Loddon and the River Foudry Brook. The nearest surface water body is an inland river 126 m to the west.
River and Coastal Flooding	Flooding from rivers or sea: No records within 50m of the Site. Surface water flooding: highest risk on-Site and off-site relates to a 1 in 100-year return period with a maximum modelled depth of 0.3-1.0m. Groundwater Flooding: Low.
Environmentally Sensitive Sites	None within 250m.

4 POTENTIAL SOURCES OF CONTAMINATION

The following section provides a summary of the potential sources of contamination identified from the various information references, both historical and recent. The tables include an indication of the likelihood that contamination of the Site has occurred due to the potential sources identified. Where the likelihood is assessed as 'unlikely,' that potential source is not considered further in the risk assessment, though this is not a 'guarantee' that this has not occurred. The distances provided in the tables are approximate.

4.1 History of the Site and Surrounding Area

4.1.1 Ordnance Survey Maps

Historical Ordnance Survey maps have been obtained from Groundsure and are reproduced in Appendix D. Table 3 focuses on features which are considered to be of relevance to this study including potential sources of contamination and geographical features which may be significant to the conceptual site model. Data shown below corresponds to records within 250m of the site.

Table 3: Summary of Historical Activities

Date	On-Site	Off-Site
1872	The majority of the Site is shown to comprise open land. Seven distinct structures are present in the west of the Site with access gained to them from the west. They are listed as 'Whitehouse Farm' A water feature is located in the south-east corner of the site.	Brickworks – approximately 50m north-west. A road is shown directly adjacent to the southern boundary of the Site.
1877	A footpath is indicated to cross the south Site trending east/west. No other features of interest are considered relevant.	Well – approximately 50 m north-west. No other features of interest considered relevant.
1899 - 1900	A wooded area is shown in the south of the Site adjacent to the southern boundary along the road and next to the water feature. Two further structures are now noted to be present in the west of the Site.	Clay pits are now shown to be present adjacent to the west of the Site. The northern area of the brick works is now shown to be an 'old clay pit'. Excavations are still visible but those in the north and south are shown to have trees and vegetation within them. Three ponds are shown within 50m to the northwest of the Site within the old brick works.
1910 - 1911	No other features of interest are noted.	The brick works and clay pits to the northwest are now noted as and 'old brick works' and 'old clay pit'

Date	On-Site	Off-Site
1937	No other features of interest are noted.	Vegetation and trees shown within the old brick works to the northwest of the site. The scar of a clay pit (sloping ground) indicated within the old clay pit areas, in close proximity to the west of the Site. The scar of another pit is shown approx. 170m N.
1956-1961	An additional building is shown in the southwestern part of the Site	Small buildings shown to the south of the Site.
1968 -1978	Numerous structures are now shown in the west of the site. They are no longer listed as 'Whitehouse Farm'. The water feature which was present in the southeast of the Site is now no longer shown to be present.	Additional structures are now shown to be adjacent to the Site on the other side of the road in the south. These structures are listed as 'White House Farm'. Ground works shown to the west of the site The scar of the former clay pits adjacent to the Site (W) and 170m N are no longer evident in 1972 historical map Footpaths are shown within those areas, to the west of the Site.
1983 – 1988	A 'caravan site' is now shown to be present in the northwest corner of the Site.	A 'caravan site' is now shown directly adjacent to the northwest corner of the Site.
1994	No other features of interest are noted.	No other features of interest are noted.
2001	No other features of interest are noted.	No other features of interest are noted.
2003	Further structures are shown to have been constructed in the western area of the site.	No other features of interest are noted.
2010	No other features of interest are noted.	No other features of interest are noted.
2025	A Caravan Site is no longer listed on the Site.	Residential construction is now shown to be present directly adjacent to the eastern border of the Site.

4.1.2 Other Sources of Information

Groundsure Satellite Imagery

Satellite imagery included within the Groundsure report has been reviewed and is dated between 1999 and 2022.

In the earliest imagery, the Site is shown to comprise fields in the east and north of the site. A wooded area is shown to be present in the southeast of the Site. What appears to be industrial and residential structures are located in the west of the Site with a number of laydown areas and compounds present to the southwest, potentially use for parking and storage.

The surrounding area comprises agricultural fields and wooded areas. A farm and associated structures are shown to the south, beyond white house lane.

From 2005, satellite imagery shows a car parking area has been constructed adjacent to the southwestern corner of the Site.

From 2010, a compound area in the south of the Site is shown to have expanded eastwards.

2019 aerial photograph shows a structure in the northeast of the Site has now been demolished and a hardstanding car park is present. The compound and laydown areas in the centre of the Site are shown to have expanded north.

The final image dated from 2022, shows the central compound and laydown areas have expanded further northwards. An access road is also now shown to be present in the northern area of the site leading northwards out of the site.

Google Earth Satellite Imagery

Google Earth imagery, spanning from 1985 to 2025, provides usable images starting from 2003 onwards. The aerial images from 2010 corroborate the Groundsure satellite imagery, showing the expansion of the compound area to the east.

Imagery from 2018 shows the central compound areas have expanded partially north at this stage, complete expansion to the north is shown in satellite imagery to be from at least 2021. Images from this date also show the access road is present in the central north part of the Site and a structure in the centre of the site is no longer present. A new structure has been constructed here by 2020.

Imagery from 2025 shows a structure in the west has been removed leaving an area of open hardstanding.

4.2 Environmental Records

Environmental Records have been obtained from the Groundsure Report (Appendix B). Data shown below correspond to records within 250m of the Site.

Table 4: Environmental Records

Activities	Date	Location
Historical Industrial Land use		
Clay Pit and Old Clay Pit	1900-1909	2m N, 37m W and 126m N
Brickworks, Old Brick Works and Brick Field	1900 - 1909	2m N, 9m W, 21m N
Unspecified Ground Workings, Works and Pits	1877-1976	9m NW, 21m NW, 31m NW and 148m N.

Activities	Date	Location
Brick Kiln	1877	95m N
Historical Garages		
Repair Works	1979	234m S
Historical Landfills		
White House Farm, Spencers Wood	Historical Waste Type: Inert, Industrial, Commercial, Household Last Recorded: 31/12/1973	Adjacent W
White House Farm, Beech Hill, Shinfield	Historical No further records provided	171m N.
Historical Waste Sites		
Scrap Yard	1990	On-site
Waste Exceptions		
White House Farm, Spencers Wood	Waste exceptions associated with farming	30-37m S
Recent Industrial Land Uses		
Industrial Products	Whitehouse Farm, Beech Hill Road, Spencers – Agricultural machinery and good.	30m S
Infrastructure and Facilities	Electricity substation	128m N
Pollution Incidents		
Incident Date: 03/07/2001 Pollutant Description: Household Waste	Land Impact: Category 3 (Minor). No impact on water or air	70m W
Incident Date: 03/07/2001 Pollutant Description: Construction and Demolition Materials and Wastes	Land Impact: Category 3 (Minor). No impact on water or air	112m W

N-north, S-south, E-east, W-west

4.3 Correspondence

4.3.1 Local Authority Records

Environmental information was received from Wokingham Borough Council (WBC), Residential and Environmental Services, and has been reviewed as part of this assessment. The response included a summary of environmental search data, a review of planning history and selected historic mapping. A copy of the WBC Council's search is included in Appendix E.

The response from WBC Council is summarised below:

- ▶ Contamination Incidents – *'We have no records of contamination incidents, having been reported to us within the search area. We have no records of substantiated environmental protection complaints relating to the site.'*
- ▶ The sites status regarding Part 2A inspection – *'The site has not been designated as contaminated land under Part IIA'*
- ▶ Landfill Sites – *'With reference to the attached plan, our records indicate that the site is adjacent known filled ground. – Whitehouse Farm, Beech Hill filled ground (hatched in red on plan). Our record indicates that this was filled between 1968 and 1973, with a combination of waste – inert, industrial, commercial and household. To the west of the site, (light green polygon) we have a historical record, of a brick field and two old clay pits.'*
- ▶ This point was queried with the council as Groundsure records indicate that what is referred to as *Whitehouse Farm, Beech Hill* was in the same geographic location as Whitehouse Farm, Spencers Wood. Their response was the following: *The information provided represents the position in the Environmental Health database at the current time. We only have the one record of known filled ground in the vicinity and on our record, it is known as White House Farm, Beech Hill Filled Ground, as shown hatched in red on the plan. We have no record of known filled ground approximately 171 north. I note that 171 metres north is probably within the area of the former brickfield, including two clay pits.'*
- ▶ *To the north of the site (light green polygon) we have a historical record of former allotment gardens.*
- ▶ *The Council note that the current use of the site includes commercial activities including workshops. Such land use has the potential to cause contamination.*
- ▶ Fuel Tanks – *'We have no records of fuel tanks on the site or within 250 m'*
- ▶ Wells – *'We hold no records of wells. With respect to private water supplies, we have no records of any private water supplies within 250 m of the site.'*

The Council provided links for two planning applications, related to the redevelopment of two sites, in close proximity to the Site. ACS has reviewed the reports, available to the public from the Planning Portal and have summarised the relevant environmental information below.

RSK Environmental Limited, Geo-environmental site assessment: Land West of Beech Hill Road, Spencers Wood, Dated August 2015, Project Reference 27903-R01 (00)

This investigation was carried out in the land immediately adjacent to the east of the site.

The intrusive investigation comprised of eleven trial pits (TP1 – TP10 & TP12) which were excavated to a maximum depth of 3mbgl and eight drive-in sampler boreholes (BH1 – BH8) which were sunk to a maximum depth of 3mbgl. Ground conditions were found to comprise beneath topsoil, firm to stiff sandy

gravelly clay, locally with horizons of gravel and sand, was present and considered to be representative of River Terrace Deposits.

Groundwater was not generally encountered during the course of the investigation, with the exception of BH1 where perched water was encountered within granular material of the River Terrace Deposits at a depth of 1.2mbgl. During subsequent gas monitoring visits perched groundwater was encountered at depths between 1.31m and 3.51mbgl.

RSK did not encounter any olfactory or visual signs of contamination during the site works. Chemical testing found that all targeted samples tested were below generic assessment criteria (GAC) for Human Health and no potentially significant risks associated with soil contamination were identified.

The chemical testing results also indicated that none of the targeted samples analysed are likely to be classified as hazardous waste for off-site disposal.

Asbestos containing materials were not identified in any of the targeted samples.

The gas readings recorded during monitoring visits in July 2015 found that methane concentrations remained at and below <1%v/v across the site. Carbon Dioxide concentrations remained at below 5%v/v across the site. Flow rates during the visits remained low with a peak reading recorded at 0.1l/hr within BH4. Based on the above concentrations, gas screening values (GSV) of 0.0001l/hr for methane and 0.0021l/hr for carbon dioxide were determined. These GSVs would characterise the site as 'Green' and therefore on this basis no ground gas protection measures were deemed necessary.

Jubb Consulting Engineers, Ground Conditions Assessment Report: Bartlett Arboretum, White House Lane, Reading, Dated September 2023, Project Reference 23192-JCE-XX-XX-RP-GE-002-P1

This investigation was carried out in the land adjacent to the south of the Site, on the southern side of White House Lane.

The intrusive investigation comprised of five dynamic samples (WS01 to WS05) to a depth of 5mbgl; one cable percussion boreholes (BH01) to a depth of 10mbgl; five trial pits (TP1 – TP5) with three soakaway tests (TP1, TP2 and TP5) to BRE 365 specification; and six TRL DCPs.

Ground conditions revealed surface covering of predominately Topsoil to a depth of 0.3mbgl, comprised of firm friable brown sandy gravelly clay, with the exception of WS4 which encountered Made Ground to a depth of 0.4mbgl, comprised of firm dark brown sandy gravelly clay with rare brick fragments. Underlying either Topsoil or Made Ground, River Terrace Deposits, comprising variable cohesive and granular material to depths of between 1.8m and 4.0mbgl were encountered. Underlying the River Terrace Deposits, the London Clay Formation was encountered in all exploratory locations, excluding WS4, and was described typically as firm to stiff variably sandy clay with shell fragments and was present to the base of all exploratory locations.

No groundwater was encountered in any of the exploratory holes during the course of the intrusive investigation. During subsequent gas and groundwater monitoring visits groundwater levels were recorded at depths between 1.25m and 1.5mbgl.

Jubb did not encounter any olfactory or visual signs of contamination during the site works other than the inclusion of rare brick fragments within WS4.

Chemical testing found that all targeted samples tested were below GAC of the LQM/CIEH Suitable 4 Use Levels (S4ULs) with a land use of 'Public Open Space – Park'. The chemical testing undertaken for petroleum hydrocarbons found no elevated readings in relation to GAC values.

Asbestos containing materials were not identified in any of the targeted samples.

The gas readings recorded during monitoring visits in August 2023 found values of 0.0% for Methane and values of between 0.9 % and 5.6 % for carbon dioxide. No positive flow rates were recorded. Based on the above concentrations, a GSV reading of 0.0056l/hr was calculated and therefore indicates a Characteristic Situation 1 for methane and carbon dioxide and classified as Very Low Risk and so therefore on this basis no ground gas protection measures were deemed necessary.

4.3.2 Unexploded Ordnance Risk

ACS reviewed the Zetica regional unexploded bomb risk map for this area, which indicates that the Site is in a low-risk area. No further desk study data was considered necessary.

5 PRELIMINARY CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

5.1 Introduction

The following summarises the physical and contaminated land conceptual site model (CSM), and the preliminary contaminated land risk assessment. The term 'contaminant linkage' refers to the connection between a contaminant, an exposure pathway and a receptor. Each element may exist in isolation and pose no environmental risk. It is only when all three elements are present that a contaminant linkage is considered possible, and these are discussed below. The potential risk associated with each contaminant linkage will depend on whether the ground has been impacted by a contaminant from a potential source, and then the likelihood of a receptor being harmed, which is primarily dictated by the physical conditions.

5.2 Physical CSM

Features of the environmental setting which are particularly pertinent to the physical CSM include:

- ▶ There is no Made Ground or Artificial Ground recorded to be present at this Site. However, Made Ground is likely to be present on-site associated with historic Site development.
- ▶ Underlying a large portion of the Site is shown to comprise River Terrace Deposits, consisting of sand and gravel, locally with lenses of silt, clay or peat'. These deposits are identified as a Secondary (A) Aquifer, capable of supporting local water supplies and base flow to rivers.
- ▶ The underlying bedrock geology includes the London Clay Formation (Clay), classified as an Unproductive Aquifer due to its low permeability.
- ▶ The nearest surface water body is an inland stream located 126m W of the site.
- ▶ The Site is not located within a Groundwater Source Protection Zone, nor are any groundwater, surface water or potable abstraction licences recorded within 1km.
- ▶ The Site is situated within the vicinity of historically worked and infilled areas, with numerous past features including brickworks, clay pits, unspecified workings, and ponds, recorded within the Sites immediate surroundings. Groundsure records identify 20 off-site historical surface workings within 250m, confirming a legacy of intensive land use and ground disturbance.
- ▶ Data from the Council and GroundSure indicate that the Site is adjacent to known filled ground. The Council records indicate that the adjacent landfill was filled between 1968 and 1973, with a combination of waste – inert, industrial, commercial and household. Another historical landfill is recorded by GroundSure 171m N of the Site. There is no further data provided by GroundSure or the Council, however, historical mapping indicates this landfill to be recorded at a historical clay pit, which was potentially infilled by 1972/73.

5.3 Potential Contaminant Linkages

5.3.1 Potential Sources

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a contaminant as:

“A substance which is in, on or under the land which has the potential to cause harm or cause pollution of controlled waters.”

Based on the information obtained in this study, the following potential sources of contamination and associated most likely contaminants, have been identified:

On-Site

- ▶ Made Ground from historic Site development – Metals, hydrocarbons (including TPH and PAH), asbestos, hazardous ground gases. Ground gases only feasible if significant thickness of Made Ground with organic matter is present on-site.
- ▶ Historical farming (White House Farm) and use of parts of the Site as a scrap yard. Farming activities are likely to have been carried out until the late 1960s. For the scrap yard, GroundSure indicate the activity to possible have occurred in the 1990s - Metals, hydrocarbons (including TPH and PAH). Hazardous ground gases from potential slurry pits, infilled ground, but only feasible if significant thickness of Made Ground with organic matter is present on-site.
- ▶ Historical and current commercial activities at the Site including vehicle and machinery storage, vehicle/machinery servicing and repair workshops, vehicle oil IBCs & containers, storage of vehicle/ machinery parts including used batteries - Metals, hydrocarbons (including TPH and PAH), asbestos, solvents (volatile organic compounds).

Off-Site

- ▶ Brickworks, clay pits and subsequent landfill activities carried out in adjacent areas to the west of the Site. The Council and Groundsure records indicate that that this area was filled between 1968 and 1973, with inert, industrial, commercial and household waste - Metals, hydrocarbons (including TPH and PAH), asbestos, hazardous ground gases. Ground gases only feasible if significant thickness of Made Ground with organic matter is present.
- ▶ Brickworks, clay pits and subsequent landfill activities carried out to the northwest, west of the Site. The landfill activities are recorded by GroundSure 171m N of the Site. However, no further data is provided. Historical mapping indicates that this landfill was a historical clay pit, which was potentially infilled by 1972/73. The composition of the infill materials is unknown - Metals, hydrocarbons (including TPH and PAH), asbestos, hazardous ground gases. Ground gases only feasible if significant thickness of Made Ground with organic matter is present on-site.
- ▶ Farming activities and waste exceptions undertaken at White House Farm, 30m to the south of the Site. Metals, hydrocarbons (including TPH and PAH). Hazardous ground gases from potential slurry pits, infilled ground, but only feasible if significant thickness of Made Ground with organic matter is present.

5.3.2 Potential Receptors

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a receptor as:

“Something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property or controlled waters.”

The following sensitive receptors could be impacted if exposed to contaminants:

- ▶ Future site users

- ▶ Construction workers
- ▶ Proposed buildings and infrastructure
- ▶ Controlled Waters (Secondary (A) Aquifer, inland river 126m W of the site)

5.3.3 Potential Pathways

The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a Pathway as:

“A route by which a receptor might be affected by contamination.”

The following exposure/migration pathways may be present, in relation to the receptors listed above:

Future Site Users & Construction Workers

- ▶ Soil and dust ingestion (indoor and outdoor)
- ▶ Dermal contact with soil and dust (indoor and outdoor)
- ▶ Inhalation or ignition of hydrocarbon vapour
- ▶ Inhalation of dust (indoor and outdoor)
- ▶ Ignition or inhalation of hazardous ground gases
- ▶ Inhalation of free fibres of Asbestos

Controlled Waters

- ▶ Vertical infiltration of water through permeable ground.
- ▶ Lateral migration through shallow groundwater to surface water.

Buildings and Infrastructure

- ▶ Ignition of hazardous ground gases or hydrocarbon vapour.
- ▶ Ingress of organic contaminants into water supply pipes.

5.3.4 Preliminary Contaminated Land Risk Assessment

Table 5 summarises the potential contaminant linkages which are considered to be credible for this site following the proposed development. The risk posed by a given contaminant linkage is classified based upon the likelihood of the linkage being realised, and the severity of the consequence should that linkage be realised. The definitions of likelihood and consequence used in this report are provided in Appendix G. These are based on those outlined in CIRIA guidance document C552.

Table 5: Summary of Contaminant Linkages and Risk Assessment

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
On-Site							
Made Ground from historic site redevelopment. Contaminants originating from historical land uses including farming and a potential scrap yard.	Metals, hydrocarbons (TPH, and PAH) asbestos fibres, hazardous ground gases	Soil and dust ingestion (indoor and outdoor) Dermal contact with soil and dust (indoor and outdoor) Inhalation of dust (indoor and outdoor)	Site users and construction workers	Medium	Likely	Development, demolition and re-development of infrastructure across the Site have resulted in ground disturbance and the introduction of Made Ground and surfacing materials across much of the Site. Further disturbance of the Site from its historic use as a scrap yard, which may have introduced further Made Ground and contaminants. The Site was also historically a farm and historical farming activities may have potentially introduce ground contaminants. An intrusive site investigation is recommended to assess ground conditions and potential contaminated land risk to identified receptors.	Moderate
		Ignition or inhalation hazardous ground gases in buildings/enclosed spaces	Site users, construction workers and buildings	Severe	Unlikely	Although long-term decomposition may still result in trace ground gas production from historical farming, e.g. slurry pits, or from Made Ground potentially present at the Site, it is considered that most if not all organic waste from potential slurry pits has decomposed, and any remaining gases are moving solely through diffusive rather than advective flow, making intrusion and accumulation in void spaces unlikely. Made Ground associated with previous Site redevelopment is further considered unlikely to have significant organic matter at significant depths, which could generate a risk from ground gas.	Moderate/Low
		Vertical infiltration of water through permeable ground. Lateral migration through shallow groundwater to surface water.	Secondary (A) Aquifer Unnamed river – 126 m W	Medium	Low likelihood	The Site is underlain by a superficial Secondary (A) Aquifer of granular River Terrace Deposits. Therefore, migration of contaminants is possible. Additionally, an unnamed inland river is located 126 m W of the site and could conceivably be impacted.	Moderate/Low
		Direct contact and absorption into building materials. Corrosion of concrete/plastic pipes	Buildings and infrastructure	Mild	Low Likelihood	An intrusive site investigation is recommended to assess ground conditions and potential contaminated land risk to identified receptors.	Low

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
Historic and current commercial use, vehicle and machinery parking and storage plus several vehicle maintenance bays. Oil storage tanks & containers and used battery storage containers.	Metals, hydrocarbons including PAHs and TPHs, VOCs	Soil and dust ingestion (indoor and outdoor)	Site users and construction workers	Medium	Likely	The central area of the Site, as defined by the walkover survey and historic maps, were historically and still are used for vehicle and machinery, parking and storage. It is feasible that fuel or oil from various vehicles has leaked into the ground over this period. Cracked and broken concrete slabs were also observed in the vicinity of the maintenance bays. Minor surface staining was observed in two gravel compound areas associated with vehicle storage. The extent and severity of staining were minimal, with no associated ponding, sheening, or visible infiltration to permeable ground. These are unlikely to be high risk contaminant sources but should be investigated if development were to happen in those areas, especially if soft landscaping were planned. For the existing workshops, although vehicle repair /maintenance workshops have currently hard surfacing, a potential risk from historical contamination cannot be dismissed at this stage of the site assessment and an intrusive investigation is recommended to assess ground conditions. The site included multiple vehicle oil IBCs and containers. There was also some evidence of leakage, staining, or surface deterioration was observed at the time of the walkover, in the vicinity of these features and although these features are considered minor, they are potential sources of localised contamination due to the potential for historic or future hydrocarbon releases. A number of IBCs around the site were situated on top of large plastic bunds and sited atop concrete slabs and therefore the risk is minimal in these circumstances, however a number were found where this was not the case and sited atop cracked and broken concrete slabs or compacted & loose gravel and so therefore the risk remains. Buildings or infrastructure could be corroded if there is very high or low acid or alkali, or high concentrations of sulphur compounds or chloride, or hydrocarbons associated with the vehicle activities across a large proportion of the site. Furthermore, drainage grates were observed in the vicinity of maintenance bays and therefore provides a potential pathway to groundwater for oils and other fluids. An intrusive investigation is recommended to assess ground conditions.	Moderate
		Dermal contact with soil and dust (indoor and outdoor)					
		Inhalation of dust (indoor and outdoor)					
		Ignition or inhalation of hydrocarbon vapours, or hazardous ground gases in buildings/enclosed spaces	Site users, construction workers and buildings	Severe	Low Likelihood	Moderate	
		Direct contact and absorption into building materials. Corrosion of concrete/plastic pipes	Buildings and infrastructure	Mild	Low Likelihood	Low	
		Vertical infiltration of water through permeable ground. Lateral migration through shallow groundwater to surface water.	Secondary (A) Aquifer Unnamed river – 126 m W	Medium	Likely		Moderate
Off-Site							

Source	Potential contaminants of concern	Potential exposure pathways	Receptors following redevelopment	Consequence of risk being realised	Probability of risk being realised	Comments	Risk classification
Infilled ground from historic activities including infilled pits and landfills (White House Farm, Spencers Wood and Beech Hill) within close vicinity.	Metals, hydrocarbons (TPH and PAH) asbestos fibres, Hazardous ground gases (including methane and carbon dioxide)	Leachate migration from off-site to the site through permeable strata and/or groundwater. Capillary action and subsequent direct contact with future land users and construction workers . Inhalation of fugitive dust.	Future Site Users Construction Workers Buildings and infrastructure	Medium	Unlikely	Historical records and mapping indicate the presence of infilled pits and landfills covering an area of land immediately to the west of the site up to approximately 100m away and 171 m N. Groundsure and Council records indicate the landfill site to the immediate west to have included inert, industrial, commercial and household. These areas are therefore likely to contain variable infilled materials. As a result, there is potential for a range of contaminants to be present, with some capacity for migration onto the site through underlying granular strata. However, due to the age of the landfilling activities (early 1970s) and topography of the area (groundwater likely to migrate towards the west), it is unlikely that leachate contaminants can migrate and have a significant impact on the Site.	Low
		Vertical migration of ground gasses through granular materials and/or groundwater, accumulation of gases in enclosed spaces, asphyxiation, and ignition.	Future Site users Proposed buildings	Severy	Unlikely	In terms of hazardous ground gases, the majority of infilled pits are shown to have been infilled by the early 1970s (approx. 1972/1973), and a potential risk from significant ground gas migration, which could represent a significant risk to the Site is unlikely. Ground gas monitoring carried out for two adjacent sites has indicated ground gas levels recorded from boreholes by the two investigations were not significant. Both investigations classed their respective sites as Green or Characteristic Situation 1 (CS1) for methane and carbon dioxide. This indicated a Very Low Risk to those developments and no ground gas protection measures were deemed necessary.	Moderate/Low
Farming activities and waste exceptions White House Farm, 30m to the south of the Site.	Metals, hydrocarbons (including TPH and PAH).	Leachate migration from off-site to the site through permeable strata and/or groundwater. Capillary action and subsequent direct contact with future land users and construction workers . Inhalation of fugitive dust.	Future Site Users Construction Workers Buildings and infrastructure	Medium	Unlikely	Although there is the potential that farming and activities associated with the waste exceptions at White House Farm, 30m south of the Site, could have an impact on the environmental site conditions, this potential risk is unlikely. No further action is required. However, as part of best practice, a watching brief is recommended during construction works.	Low
	Hazardous ground gases (including methane and carbon dioxide)	Vertical migration of ground gasses through granular materials and/or groundwater, accumulation of gases in enclosed spaces, asphyxiation, and ignition.	Future Site users Proposed buildings	Severy	Unlikely	There is the potential for ground gases to originate and migrate from potential slurry pits, infilled ground associated with farming activities at White House Farm, 30m south of the Site. However, this is unlikely and only feasible if significant thickness of Made Ground with organic matter is present.	Moderate/Low

6 CONCLUSIONS AND RECOMMENDATIONS

Based on the information gathered during this desk study, the following conclusions have been made.

- ▶ A **Moderate Risk** from contamination is perceived to human health from historical and current on-site activities including historical farming activities, potential scrap yard and current commercial use, vehicle and machinery parking and storage plus several vehicle maintenance bays. Also, from storage of oil storage tanks & containers and used vehicle/machinery parts including battery storage containers. Most areas currently used for commercial activities including workshops are hard surface areas and are not considered a high contaminative risk to current site users or controlled waters but should be investigated if the Site is redeveloped.
- ▶ A **Moderate/Low Risk** is perceived from potential on-site ground gases due to accumulation, ignition and inhalation in new buildings/enclosed spaces. This from Made Ground associated with potential infilled slurry pits (historical farming) or from previous site redevelopment. However, the risk from this is unlikely to be significant.
- ▶ A **Moderate to Moderate/Low Risk** is perceived to controlled water receptors and a **Low Risk** to Buildings and infrastructure from historical and/or current activities at the Site.
- ▶ A **Moderate/Low Risk** is perceived in relation to the potential for off-site generation of hazardous ground gases relating to the historic landfills at White House Farm landfill sites (Beech Hill and Spencers Wood).

It is addressed that the majority of infilled pits are shown to have been infilled by the early 1970s and the landfill activities recorded to the landfill immediate west were reported from 1968 to 1973. Therefore, the potential risk from significant ground gas migration, which could migrate and represent a significant risk to the Site is unlikely. Furthermore, ground gas monitoring carried out for two adjacent sites indicated that ground gas levels recorded from boreholes by the two investigations were not significant. Both investigations concluded that there was not a risk from ground gas to new buildings/enclosed structures the proposed developments.

- ▶ A **Low Risk** is perceived from the historical landfills at White House Farm landfill sites (Beech Hill and Spencers Wood) via leachate migration of contaminants from off-site to the Site through permeable strata and/or groundwater.
- ▶ A **Moderate/Low Risk** and a **Low Risk** is perceived from ground gases and/or contaminant migration from off-site farming activities and waste exceptions at White House Farm, 30m south of the Site. However, the risk from this is unlikely to be significant.

Based on the outcome of this Phase 1 investigation it is recommended that an intrusive investigation be carried out for the Site, to confirm ground conditions, investigate and assess contaminant linkages identified by the preliminary CSM, and clarify the potential for contamination and/or ground gas to be present on-site from on and/or off-site sources.

It is addressed that the potential of significant ground gas generation off-site is unlikely, since landfill activities ceased more than 50 years ago. Furthermore, historic gas monitoring assessments of sites in the Site vicinity concluded that the ground gas risk was very low. However, these conclusions were based on data collected from investigations to the south and east of the Site, and further away from the historical landfill sites. Given the potential severity of consequences should ground gas risks be

underestimated, proximity to the historical landfill site, and the absence of monitoring data from the immediate development area, ground gas monitoring is recommended to support a robust, site-wide risk assessment.

In addition to ground gas, intrusive investigation is also recommended to assess potential risks to human health and controlled waters. This will provide adequate coverage and allow refinement of the preliminary conceptual site model and risk assessment using up-to-date and site-representative data

There is the potential for Made Ground to be present throughout the site. It is therefore recommended that waste classification testing including asbestos ID testing is undertaken for Made Ground found on-site, should soils be disposed off-site.

Other Considerations: This Desk Study has identified materials within some buildings which may contain asbestos. Prior to demolition works, an asbestos survey should be undertaken for the Site by an Asbestos Specialist Surveyor. All materials containing asbestos should be handled and disposed of in accordance with the current asbestos regulations CAR 2012.

7 REFERENCES

British Geological Survey (BGS) (1991). 1:50,000 geological map. Sheet 268 (Reading).

British Geological Survey (BGS) (1991). 1:10,000 geological map. Sheet SU76NW (Shinfield)

British Geological Survey Online Viewer

BS 5930:2015+A1:2020. Code of practice for ground investigations.

BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice.

BS 8576:2013 Guidance on investigations for ground gas - Permanent gases and volatile organic compounds (VOCs).

BS 8485:2015+A1:2019 - Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings.

CIRIA, Construction Industry Research and Information Association (2007). Assessing risks posed by hazardous ground gases to buildings. CIRIA C665.

CIRIA, Construction Industry Research and Information Association (2001). Contaminated Land Risk Assessment. CIRIA 552.

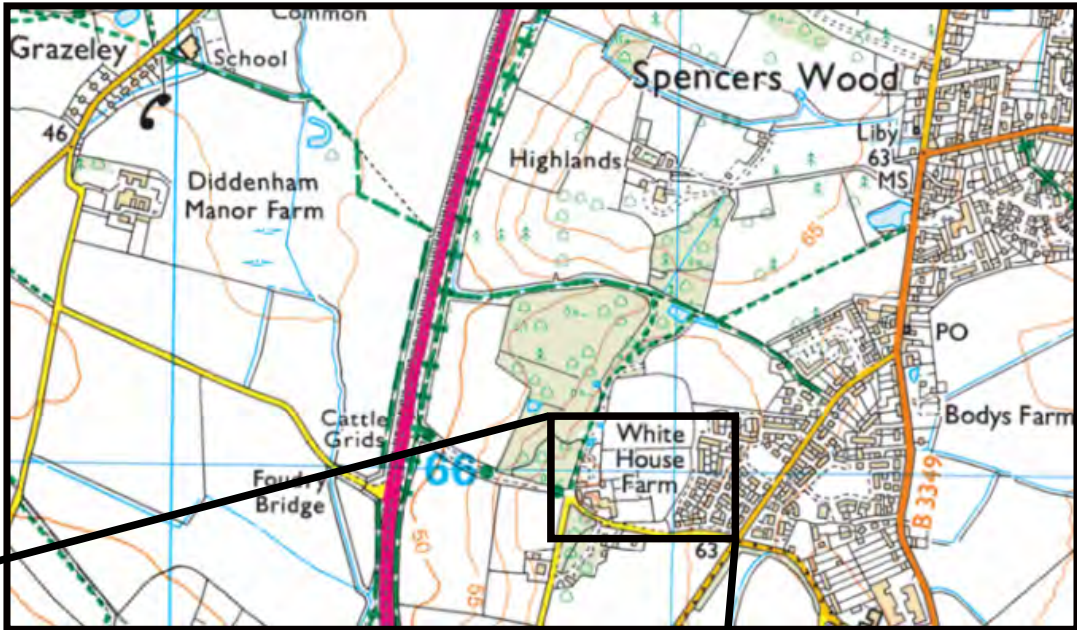
Department of Environment and Rural Affairs (2012). Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance.

Environment Agency (2020). Land Contamination Risk Management (LCRM). 'Before you start,' 'Stage 1 Risk Assessment', 'Stage 2 Options Appraisal', 'Stage 3 Remediation and Verification'.
<https://www.gov.uk/government/publications/landcontamination-risk-management-lcrm>

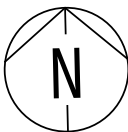
Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. Available at www.gov.uk/government/publications.

Figure 1 – Site Location Plan (Drawing 25-54587-1)

Notes:
Contains BING Maps data.



Key:
— Approximate Site Boundary



DO NOT SCALE

Drawing:
Site Location Plan

Client:
Lister Wilder

Project:
White House Farm
Reading
RG7 1HR

Project No:
25-54587
Drawing No:
25-54587-1
Revision:

Drawn By:
EC

Date:
28/05/2025

Checked By:
CN

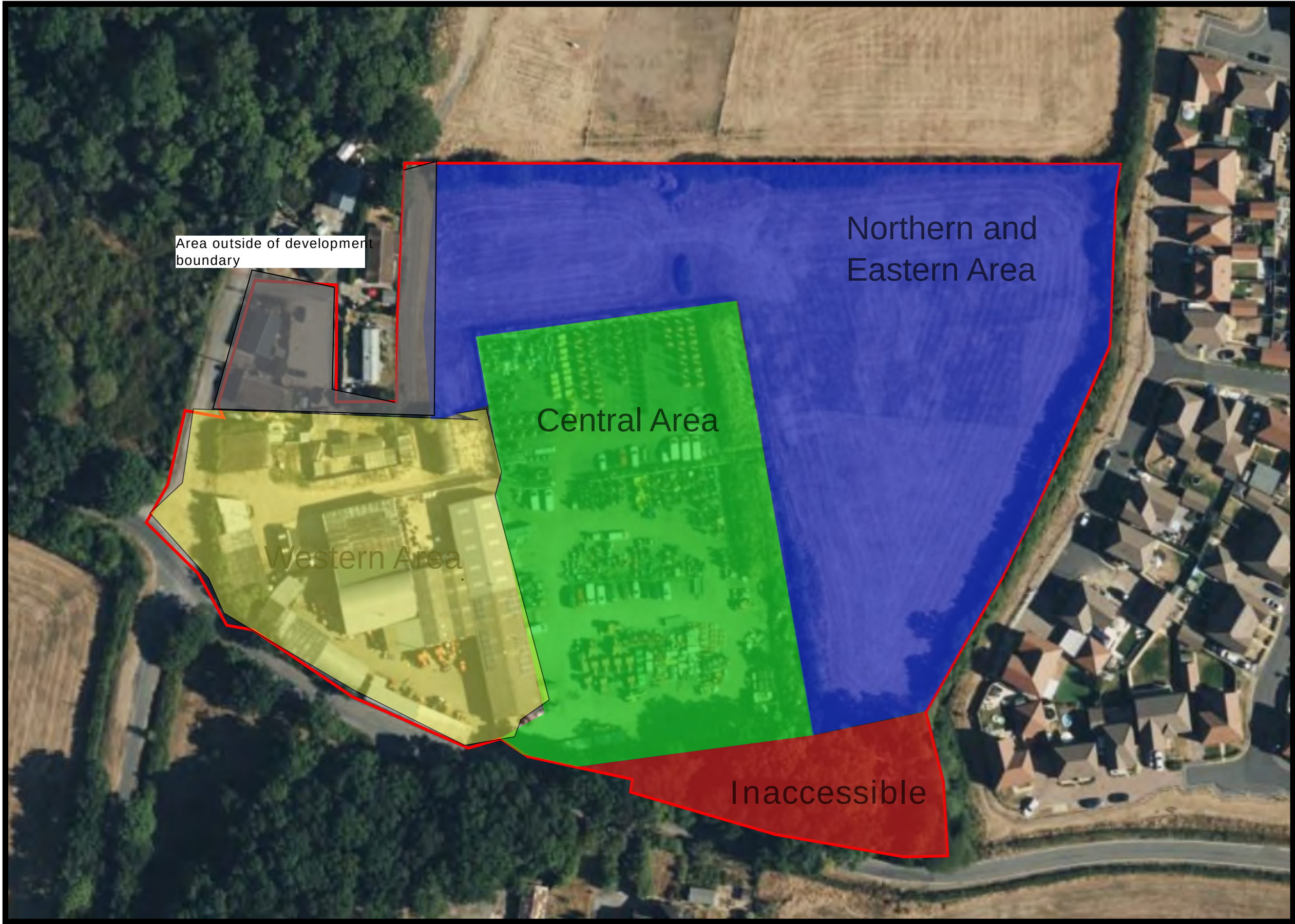
Date:
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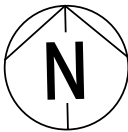
Figure 2 – Site Location Mark-up (Drawing 25-54587-2)

Notes:
Contains BING Maps data.



Key:

— Approximate Site Boundary



DO NOT SCALE

Drawing:
Site Location Mark-Up

Client:
Lister Wilder

Project:
White House Farm
Reading
RG7 1HR

Project No:
25-54587
Drawing No:
25-54587-2
Revision:

Drawn By:
AL

Date:
23/06/2025

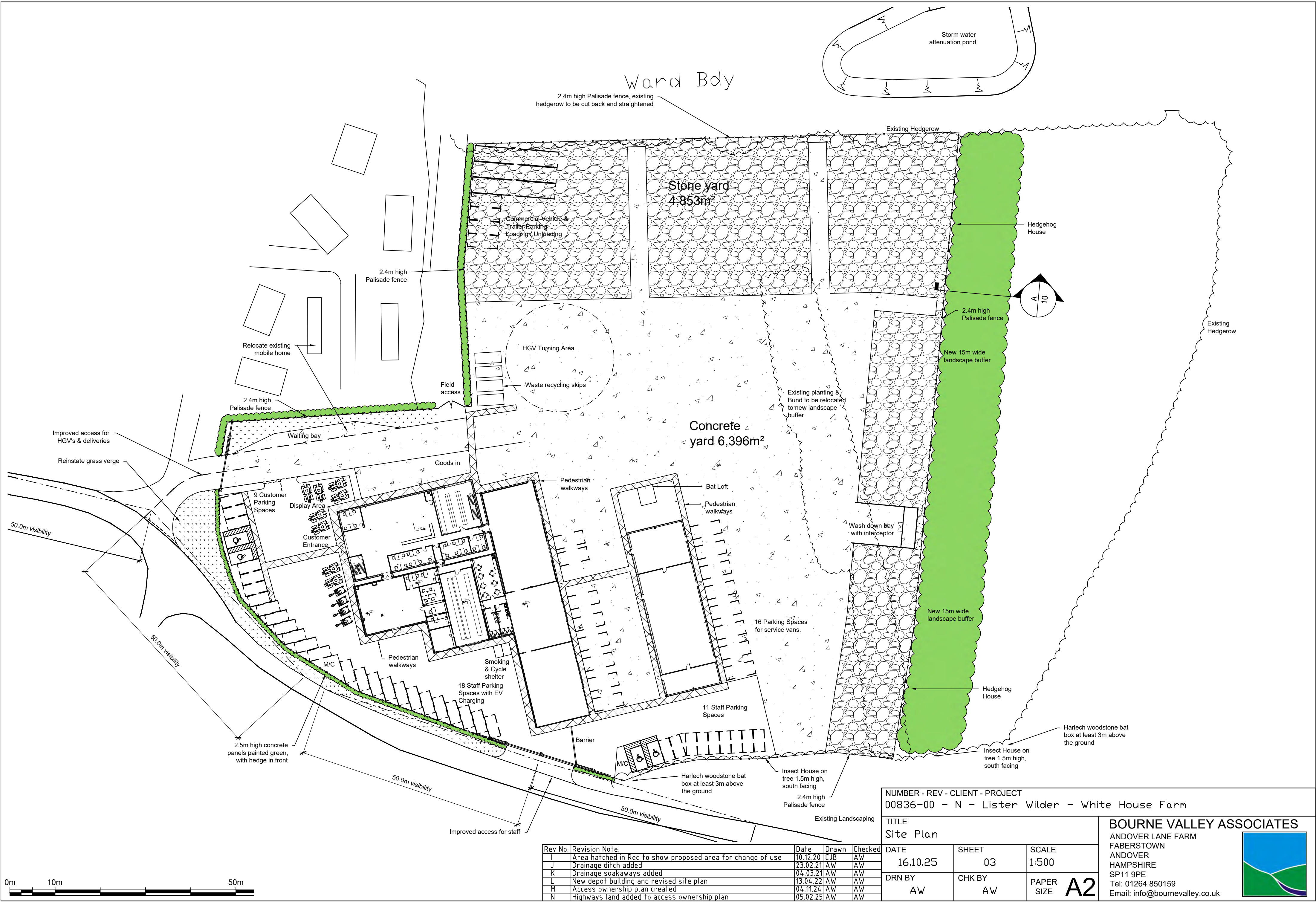
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**Figure 3 – Proposed Development Layout (Drawing 00836-00-N by
Bourne Valley Associates)**



Rev No.	Revision Note.	Date	Drawn	Checked
I	Area hatched in Red to show proposed area for change of use	10.12.20	CJB	AW
J	Drainage ditch added	23.02.21	AW	AW
K	Drainage soakaways added	04.03.21	AW	AW
L	New depot building and revised site plan	13.04.22	AW	AW
M	Access ownership plan created	04.11.24	AW	AW
N	Highways land added to access ownership plan	05.02.25	AW	AW

NUMBER - REV - CLIENT - PROJECT
00836-00 - N - Lister Wilder - White House Farm

TITLE
Site Plan

DATE
16.10.25

DRN BY
AW

SHEET
03

CHK BY
AW

SCALE
1:500

PAPER SIZE
A2

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Rev No.	Revision Note.	Date	Drawn	Checked
I	Area hatched in Red to show proposed area for change of use	10.12.20	CJB	AW
J	Drainage ditch added	23.02.21	AW	AW
K	Drainage soakaways added	04.03.21	AW	AW
L	New depot building and revised site plan	13.04.22	AW	AW
M	Access ownership plan created	04.11.24	AW	AW
N	Highways land added to access ownership plan	05.02.25	AW	AW

NUMBER - REV - CLIENT - PROJECT 00836-00 - N - Lister Wilder - White House Farm		
TITLE Demolition Plan		BOURNE VALLEY ASSOCIATES ANDOVER LANE FARM FABERSTOWN ANDOVER HAMPSHIRE SP11 9PE Tel: 01264 850159 Email: info@bournevalley.co.uk
DATE 16.10.25	SHEET 07	
DRN BY AW	CHK BY AW	
SCALE 1:500		PAPER SIZE A3

