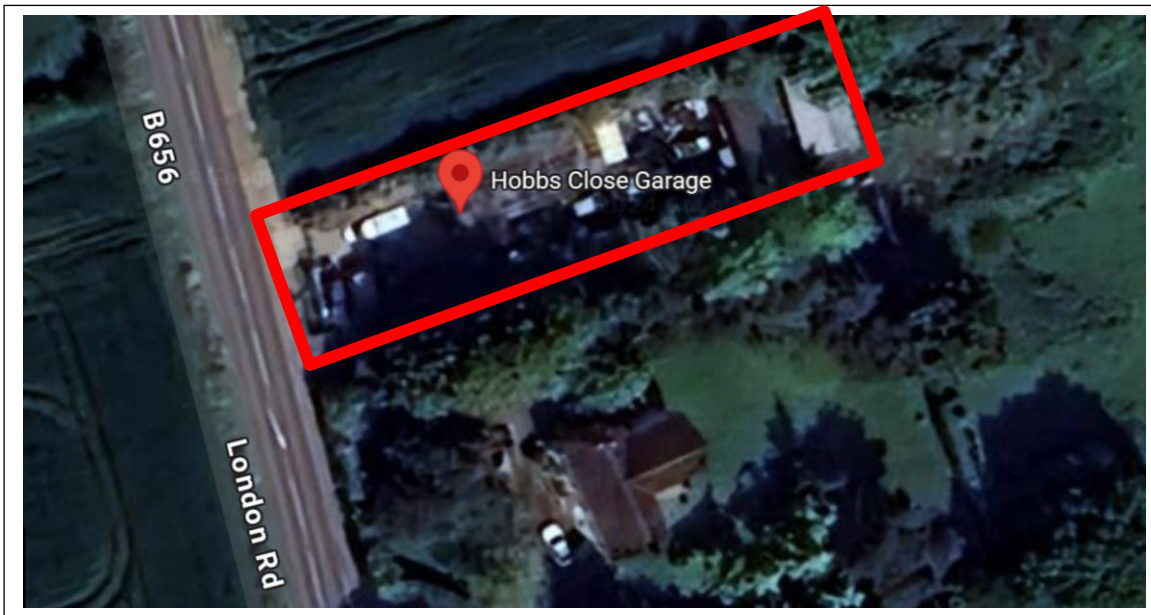


Planning, Management Plan

HOBBS CLOSE GARAGEPEASCOD COTTAGE, LONDON ROAD ST IPPOLYTS, SG4 7NJ

Planning, Management Plan



Prepared By G Elston. General Project Safety Services Ltd, on behalf of
A J Cook Builders LLP (Hertfordshire)

September 2024



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Issue Date: September 2024

Construction Management Plan – HOBBS CLOSE GARAGEPEASCOD COTTAGE, LONDON ROADST IPPOLYTS, SG4 7NJ

1. Introduction

The purpose of this Planning Management Plan (“the Plan”) at this planning stage is to outline our approach to managing the execution of the proposal to demolish the existing garage buildings and the build of a new house, on this Brown field site. The Plan has been formulated out of best practice for execution of the of the development proposed. The safe demolition of the existing garage buildings and preparation of the land ready for the new development. The building work essentially comprises the following elements the setting out and excavation of the foundations, access road, drainage, and all associated services to the development. This document includes comment on the envisaged construction operations comprising site establishment, logistics and the process of managing the overall local environment. It seeks to ensure that the works cause the minimum practicable disruption to neighbouring residents including by achieving a safe working and living environment.

The Plan forms part of the planning application proposals and envisage guiding their execution. Throughout the project, we will regularly review the plan and maintain a communicative relationship with the council advising them of such changes and/or improvements to the plan as may occur. The Plan’s proposals shall enable third parties to understand the nature of the works and the various construction activities associated with the development.

To the extent that this project requires third party regulatory approvals, this Plan will be reviewed to bring it into line with such requirements of the same. Formal approvals and activity methodology approaches will be addressed in detailed submissions to the design team and the Client. Liaison with the neighbours and interested parties will continue throughout project execution and as information is updated. Neighbours will be kept informed of progress and anticipated works.

The Plan provides an overview of the key project activities. Generic statements will be amplified at the appropriate stage of the project, together with relevant procedures and detailed method statements. This Plan will be used as the template for developing the construction phase health and safety plan, in tandem with the Construction Method Statement. In selecting the appropriate contractors, we shall assess their projects track record and management procedures to ensure capability to deliver a project safely and with minimum practicable disruption and inconvenience to local residents. Throughout the works the contractors will be required to provide relevant method statements and risk assessments for the works.

Benchmarking against relevant Key Performance Indicators will be used to monitor the contractor’s performance against the qualities in this plan.

2.0 Project Overview

The existing site is an, Brownfield site off the B656, London Road, where we plan to demolish the garage repair buildings and clear the site ready to build a 4-bed detached residential property.

In relation to site access, the development is situated off the B656 London Road, a primarily rural residential area, there is no rear access to the site. All of the works will be accessed via the front entry point off B656 London Road. Delivery lorries and skips and contractors will all park and off load on the site so not to disrupt the neighbours.



3.0 Proposed Site Works

3.1 Preliminary Programme

It is envisaged that the duration of the works described will be approximately 60 weeks, project commencement October 2024. The key elements of the development with regards to the potential impact on the surrounding area are: -

- Site set up
- Demolition of existing buildings
- Civils
- Construction phase
- Services connections

neighbours. All works, scaffold shall be contained within the site boundary fence lines. Access and working space for the construction of residential property.

4.0 Construction Management Action Plan

The following sections outline the key elements for consideration and demonstrates our commitment to manage, control and where possible mitigate the impact of the project on neighbours, the local community and infrastructure.

Many of the matters identified will be developed in more detail and dealt with at the appropriate construction stage by detailed site-based method statements. Method statements will be prepared and agreed for all major site operations in advance of the relevant works commencing. This is particularly for the groundwork excavation and structural works.

4.1 Communication

4.1.1 Neighbourly Relations

The site is within a rural residential area of ST IPPOLYTS. We currently have and seek to maintaining good neighbourly relations. Such relations are assisted greatly by good communication, and by keeping neighbours and appropriate third parties regularly informed of site activities likely to impact on adjoining residents. The contractors' representatives and the management team will be receptive to all reasonable concerns of the neighbours and local community and will demonstrate a considerate and professional approach, so as to maintain a well-balanced relationship with neighbours, and the local public during the project.

Notices shall be posted on the site Fencing/hoarding to keep neighbours advised of anticipated events, general progress of the works and any requirements for any abnormal works. Appropriate signage and information boards will be displayed on the Fencing/hoarding.

4.1.2 Considerate Contractors Scheme

The site will not be registered with the Considerate Contractors Scheme for the duration of the project.

4.2 Site Establishment

There is space available within the site for the site office and welfare facilities and this will enable the execution of the project within the boundaries of the site. Existing power and water supply will be used and connected. Access will be maintained for the duration of the works via the entrance off B656 London Road. Temporary fencing with gates will be erected across the front of the site giving a secure access. The contractors will liaise with our representative with regard to the details.

4.2.1 Access

Access to the site will be from the front of the site off the B656 London Road.

The access has clear view, either, direction along London Road.

There is a footpath along the side of the road at the frontage of the site. During large volume concrete works (e.g., foundations) the main road will be kept clear with use of off-road parking and washout on site, banks-persons in attendance.

During the period of bulk excavation from the foundations, there may be a continuous transfer of excavation spoil to muck away lorries these will be banks-person controlled off and onto the site

4.2.2 Traffic Management

The small scale of the project means that no construction traffic management plan is necessary. As part of the Construction Management Plan, deliveries will be carefully managed to minimise disruption to neighbours.

All deliveries to site will be undertaken with appropriate regard paid to:-

- Reversing vehicles to be directed by a Competent Person
- Pedestrian and vehicle directional signage – suitable barriers will be erected when deliveries arrive to prevent pedestrians accessing the across the footpath frontage to the site property.

Planning, Management Plan



4.2.3 Working Hours

Working hours will be 08.00 – 18.00 Monday to Friday and 08.00 – 13.00 Saturdays and no working Sundays only, in accordance with planning requirements.

4.2.4 Fire and Emergency Procedures

Contact names and telephone numbers will be made available in case of 'out of hours' emergencies relating to the site. This information will be displayed on the site board at the front of the site.

The contractors shall implement procedures to protect the site from fire. The site manager shall assess the degree of fire risk and formulate a Site Fire Safety Plan, which will be updated as necessary as the works progress and will also include the following: -

- Hot Work Permit regime.
- Installation of the site firefighting equipment e.g. establishing fire points and installing and maintaining fire extinguishers etc.
- Evacuation alarm.
- Material storage and waste control.
- Fire Brigade access.

4.2.5 Security

All site personnel will have to sign in on arrival and sign out before leaving the site. This will be incorporated into the Site Rules and included as part of the site induction process.

The site fencing will be regularly inspected to ensure that it remains secure. The access point to the site will be controlled to only allow access for authorised personnel.

4.2.6 Health and Safety

A Construction Health and Safety Plan will be prepared for the works in accordance with the CDM Regulations 2015. Risk Assessments will be developed and agreed. Sub-contractors detailed method statements will also be produced and safe methods of work established for each element of the works.

Site inductions will be held for all new site personnel to establish the site rules and to enforce safety procedures. All site personnel will be required to read the emergency procedures when signing in for the first time, and sign to the effect that they have read the procedures. These will include any relevant neighbourly issues.

4.2.7 Scaffolding

As already noted, scaffolding will be required to construct the property. Scaffolding will be used to provide workers with a safe temporary work platform. It will be planned, erected, inspected and tagged by competent persons and will be regularly inspected to ensure there are no risks to safety and will comply with the requirements of HSE regulations.

4.2.8 Good Housekeeping

The site will be kept in a clean and safe condition. The areas adjacent to the site will be regularly inspected and any site rubbish removed. The adjacent road and pavement will be kept clean. The perimeter fencing will be kept in a neat and tidy condition.

Offloading will generally be direct from vehicles on the site. Materials will not be stored on public footpaths or roads.

Waste and rubbish will be regularly removed from site and not allowed to accumulate so as to cause a safety or fire hazard.

Welfare facilities will be provided within the site to discourage operatives from frequenting the interface between the site and public areas.

4.3 Environmental Matters

We shall operate an environmental policy in which supports the following values, to:

- All to conduct their activities with proper regard to the protection of the environment.
- Comply with all relevant regulatory and legislative requirements and codes of practice.
- Communicate with local communities to ensure the work causes the minimum disturbance and disruption.
- Ensure that staff have a good understanding of the environmental impacts of construction work and how to minimise these impacts.
- Ensure their suppliers and sub-contractors apply similar standards to their own work.

During the early stages of the project, we shall carry out the following activities will be carried out to deal with environmental management:

- Prepare a Project Environmental Plan.
- Prepare and consult with the client and statutory authorities to obtain relevant approved licenses and consents
- Prepare a Site Waste Management Plan and consultation with supply chain partners and the design team to design out or minimise waste.

4.3.1 Waste and Material Management

A site waste management plan will be prepared prior to the works commencing. All waste materials will be removed from site by a licensed waste contractors and discharged via the entrance using skips or lorries.

Waste from this site will be dealt with in accordance with the waste duty of care in Section 34 of the Environmental Protection (Duty of Care) Regulations 1991 (b). Materials will be handled efficiently, and waste managed appropriately. We shall aim to minimise waste and to recycle as much material as possible. Due to the limited space on site, waste will generally be sorted for recycling at the waste transfer station.

4.3.2 Dust, Noise and Vibration

The site is not adjacent to any sensitive properties and is in a rural residential area. The minor nature of the proposals means that no special measures are necessary for the ordinary consequences of project execution. Instead, this Plan includes measures to practicably mitigate those ordinary consequences from such activities and as a matter of good practice:

Dust

- All dust making activities will use water as a dust suppressant.
- Adjacent road surfaces will be frequently swept clean.
- All loads delivered to or collected from the site will be covered where appropriate.
- All road vehicles will be requested to comply with set emission standards.
- Skips will be securely covered
- The air quality within the site shall be continually monitored

Noise and Vibration

- The contractors shall take reasonable steps to minimise any noise disruption to adjacent occupiers.
- Where it is necessary to carry out noisy activities, identify them in advance and give notice.
- Operatives working in noisy areas will be monitored to ensure they are wearing the necessary protective equipment and that they are not exceeding their permitted exposure periods.
- Electrically operated plant will be used where practical.
- Try to ensure all plant used on the site is effectively silenced.
- No externally audible radios or other audio equipment will be allowed on site.

APPENDIX 1: DESIGN AND ACCESS STATEMENT

**HOBBS CLOSE GARAGE,
LONDON ROAD, ST IPPOLYTS, HITCHIN, HERTFORDSHIRE. SG4 7NJ**

DESIGN AND ACCESS STATEMENT

**THE ERECTION OF 4-BEDROOM DETACHED DWELLING FOLLOWING DEMOLITION OF
THE EXISTING GARAGE BUILDING AS REVISION TO PREVIOUS APPROVED
PLANNING PERMISSION 21/00298/FP GRANTED 26th MARCH 2021**

1. INTRODUCTION

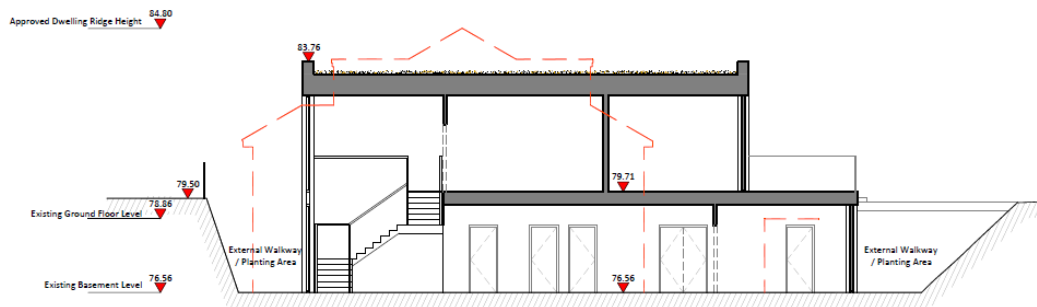
- 1.1. Planning permission 21/00298/FP has been granted in March 2021 to comprise the demolition of the existing garage building at the site, ceasing the use of the site as a car repair and MOT garage and to construct a 3-bedroom chalet bungalow mostly on the site of the existing garage building. The chalet bungalow utilises the basement accommodation underneath the existing building to provide the additional habitable accommodation as part of the new dwelling. Planning permission 21/00298/FP has been granted as a revision to the previous approved planning permission 19/00082/FP granted April 2019. This previous permission also related to the demolition of the existing garage building, the change of the use of the site and the construction of a 3-bedroom dwelling.
- 1.2. Previous planning permission 21/00298/FP comprises of a 3-storey dwelling with a study, TV room and utility room within the basement area, bedroom and kitchen/dining/lounge area at ground floor level and then bedrooms and bathrooms at first floor level. The overall height of the proposed dwelling above existing ground level to the ridge of the building is approximately 5.94m.
- 1.3. A schedule of the permitted gross external floor areas ("GEA") for the permitted dwelling is set out within the table below.

Item	GEA (m ²)
Basement	67
Ground Floor	113
First Floor	81
Total	261

2. PROPOSAL

- 2.1. The application similarly comprises a proposal to demolish the existing garage building, cease the use of the site as a car repair and MOT garage but to construct a 4-bedroom dwelling over 2 storeys, again located predominantly on the area of the existing garage. The proposal utilises the existing basement accommodation but seeks to extend the area of the basement and to carry out reduced level excavations around three sides of the basement area in order that the basement area becomes the ground floor of the new dwelling with fenestration and natural daylighting.
- 2.2. The proposal creates all the living accommodation on this basis over the 2 storeys comprising ground floor level and first floor level. The overall height of the

proposed dwelling is approximately 4.9m above existing ground level and is thereby, lower than the previously approved planning permission scheme. This is demonstrated in the site section detail below:



Section A-A

- 2.3. The new proposal in terms of gross external floor area (“GEA”) measured over the two floor levels provides the accommodation set out within the schedule below

Item	GEA (m ²)
Basement	144
Ground Floor	116
First Floor	N/A
Total	260

- 2.4. The dwelling in terms of gross external floor area is comparable with the previous approved planning permission.
- 2.5. The proposal replicates the highways access arrangements and car parking arrangements to those identified on the previous approved planning permission and which have been approved by Hertfordshire County Council.
- 2.6. The proposal identifies the inclusion of an acoustic fence to the front boundary of the site in accordance with Condition No.5 of the previous approved planning permission.
- 2.7. The proposal comprises a larger element of the footprint of the building at the (reduced level) ground floor level in order to minimise the massing of the building at first floor level; thereby to limit the additional built form over that of the existing garage building and to mitigate potential impacts on the character and appearance of the area. The existing hedge along the field boundary to the north and the mature trees around the adjacent property to Hobbs Hall to the south are both retained and continue to screen the property. It is considered that in its built form, the new proposal will have little impact on the surrounding landscape.
- 2.8. Benefits will again accrue from the proposal to construct this dwelling by removing the parking of commercial and customer vehicles along the grass verge and footpath to north of the site and to remove the cars under repair, the commercial signage and the palisade fencing to the front of the existing site, thereby promoting enhanced visual amenity to the property and the area generally.

- 2.9. The proposal demonstrates a contemporary building design using a mix of traditional and modern materials.
- 2.10. The building is to have a flat green roof planted with a sedum or wildflower mix. The green roof shall enhance the elevations to the building and mitigate the impacts of the roofscape on the surrounding countryside when viewed from elevated positions and at the same time, attenuate rainwater discharge into the public sewers.
- 2.11. The elevations to the building are to be constructed in a mixture of Blue Staffordshire engineering bricks, Forticrete split-face pewter blocks (comprising of 15% recycled components) in a stack-bond to accentuate a strong visual appearance the front entrance of the dwelling, aluminium glazed screens in a Slate Grey colour and the use of a non-combustible Rockpanel cladding system. See visuals below of the proposed principal materials:



Split-face finish



Rockpanel Timber
Cladding



Ibstock Brick Class
B Perforated
Engineering Blue



Aluminium Glazed
Screens and
Windows

- 2.12. The non-combustible Rockpanel system proposed is from the Rockpanel 'Wood Range' to provide an authentic appearance of wood to the building façade, but at the same time to mitigate the current industry concerns associated with use of natural timbers vis-à-vis risks of combustibility to building facades and sustainable sourcing of timber products.
- 2.13. The proposed dwelling is to be built to a high standard of substantiable design. The aluminium glazed window and curtain walling systems will comprise thermally broken frames with triple glazing. The heating and hot water to the proposed dwelling will be provided by low-carbon air source heat pump technologies and a plant room is identified at ground floor level to accommodate the internal heat pump unit. Lighting throughout will be LED fittings.
- 2.14. Extensive areas of the existing concrete hardstandings to the site are to be taken up and replaced by either the building (comprising the green roof area) or extended soft landscaping, thereby providing natural attenuation of rainfall and reducing surface water outfall from the site.
- 2.15. Potential contamination occurring on the site is not considered to be an issue as identified within the previous planning applications, in that the site since construction as a car repair and MOT garage has been completely covered in concrete hardstandings with a positively drained surface water system, thereby preventing risks of impacted waters migrating into the sub-soils. In any event, the previous planning permission identified environmental requirements to prepare a conceptual site model under the terms of a Preliminary Environmental Phase 1 Assessment Report and thereafter to carry out such further investigations are deemed appropriate by the Environmental Health Officer.

3. PLANNING CONDITIONS

- 3.1. The Applicant is able to accept conditions on similar terms to those within the previous planning permission, vis:
- Condition No.3: for access gates to be hung to open inwards set back and thereafter retain minimum distance of 6 meters from back edge of the adjacent footway.
 - Condition No.4: for no development to commence until a construction management plan has been submitted in writing and approved in writing by the local planning authority.
 - Condition No.5: that noise mitigation measures as submitted in the sound attenuation measures relating to glazing and ventilation specifications and the position of the acoustic fence to be fully implemented.
 - Condition No.6: that a Preliminary Environmental Phase 1 Site Assessment is undertaken and then such further environmental and validation requirements as identified under the terms of previous Condition No.6.
 - Condition No.7: for the proposed new dwelling to incorporate an electric vehicle (EV) ready domestic charging point.

4. SUMMARY

- 4.1. The proposal by retaining and extending the existing garage basement area and setting the larger part of the proposed dwelling footprint at the former basement level, and thereafter being designed over two floors rather than three and with a green flat roof rather than a pitch slated roof, again seeks to mitigate impacts on the character and appearance to the area and upon neighbouring properties. The height of the new proposal is lower than that of the previously approved planning permission. The gross external floor area of the proposed dwelling does not exceed that of the dwelling previously approved under planning permission 21/00298/FP.
- 4.2. The building is to be constructed to a high standard of design using sustainable materials, low-carbon heating/hot water technologies and LED lighting throughout. The materials which are proposed to the external façades are all of non-combustible specification.
- 4.3. The highways and parking matters are considered to be acceptable in that there are again no changes to the existing access point and the car parking arrangements from the previously planning scheme are carried over, which were considered previously by Hertfordshire County Council to be acceptable in both highways safety terms and to ensure that adequate car parking is provided at the site.
- 4.4. The proposed dwelling provides an opportunity to de-clutter and improve the visual amenity of the commercial backdrop to the existing site and to provide remediation of any potential contamination which may exist at the site.
- 4.5. Rainwater outfall from the site will be reduced.
- 4.6. Economic benefits will accrue in terms of construction jobs and expenditure in local shops.

APPENDIX 2: DESK STUDY/PRELIMINARY RISK ASSESSMENT REPORT

WE LISTEN, WE PLAN, WE DELIVER

Geotechnical Engineering and Environmental Services across the UK.

DESK STUDY / PRELIMINARY RISK ASSESSMENT REPORT

HOBBS CLOSE GARAGE
PEASCOD COTTAGE
LONDON ROAD
ST IPPOLYTS
SG4 7NJ



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Report Title: Desk Study/Preliminary Risk Assessment Report for Hobbs Close Garage, Peascod Cottage, London Road, St Ippolyts, SG4 7NJ

Report Status: Final

Job No: P4157J2480/TE

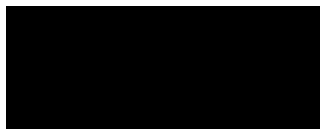
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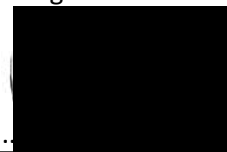
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APPENDIX 4 – QUALITATIVE RISK ASSESSMENT METHODOLOGY

APPENDIX 5 – LOCAL AUTHORITY CORRESPONDENCE

Hobbs Close Garage ('The client') commissioned Jomas Associates Ltd to undertake a desk study and preliminary risk assessment at Hobbs Close Garage, Peascod Cottage, London Road, St Ippolyts, SG4 7NJ.

Desk Study	
Current Site Use	Vehicle workshop with basement
Proposed Site Use	Demolition of existing structures and construction of a single residential property with lower ground and ground floors.
Site History	A review of earliest available (1881) historical maps indicates that the site was comprised of agricultural land until the 1980 map edition when a structure is shown centrally on site. No further changes are shown up to the most recent 2003 map edition however the site owner informed the Jomas engineer that the site was redeveloped in 2008. The surrounding areas are shown in predominantly agricultural use throughout the mapped history, with few industrial features of note. Several large gravel pits are shown from 700m south-west of site (1949, no longer shown by 1980) and a large sand pit identified from 1980.
Site Setting	The British Geological Survey indicates that the south-west corner of site is underlain by glaciolacustrine deposits with the remainder of the site underlain by glaciofluvial deposits. These superficial deposits overlie solid deposits of the Holywell Nodular Chalk Formation and New Pit Chalk Formation (Undifferentiated). The superficial deposits underlying the site are identified as a Secondary A Aquifer with the underlying solid deposits identified as a Principal Aquifer. A review of the Enviro+Geoinsight Report indicates that the site is located within a Zone 3 Source Protection Zone (total catchment). The nearest potable abstraction is reported 1939m east of site. There are no groundwater, surface water or potable water abstractions reported within 1km of the site. The nearest surface water feature is reported 173m east as Ippollitts Brook. There are no Environment Agency Zone 2 or 3 floodplains reported within 250m of the site.
Potential Sources	) Potential for contaminated ground associated with current site use – on site (S1) - o Car garage) Potential ground gas generation from nearby active/historic landfills – off site (S2) - o 293m NE (refuse tip)

Desk Study	
	- o 304m NE for Tittendell - o 362m NE (Tittendell Pit) - o 399m SW for Vicars Grove Pit
Potential Receptors	)} Construction workers (R1))} Maintenance workers (R2))} Neighbouring site users (R3))} Future site users (R4))} Building foundations and on site buried services (water mains, electricity and sewer) (R5))} Controlled waters (R6) - o Secondary A aquifer - o Principal Aquifer - o SPZ/abstraction - o Surface water feature 173m east
Preliminary Risk Assessment	The risk estimation matrix indicates a moderate risk. It is considered that the potential risks identified on site can be mitigated through a combination of the provision of a cover layer (permanent hard-standing or sub/topsoil cover layer over a geotextile membrane) and provision of basic gas protection measures in accordance with a “Characteristic Situation 2” classification as per BS8485 guidance. In addition, a watching brief should be maintained throughout the development works and any hydrocarbon impacted soils identified should be removed from site under the supervision of a suitable qualified environmental engineer, with suitable verification of removal provided. Provided that impacted soils identified on site during works are removed from site, no significant risk to controlled waters is considered to be present. A Remediation Strategy will be required to define the requirements of the remedial measures set out above.

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Hobbs Close Garage ("The Client") has commissioned Jomas Associates Ltd, to assess the risk of contamination posed by the ground conditions at a site referred to as Hobbs Close Garage, Peascod Cottage, London Road, St Ippolyts, SG4 7NJ, prior to redevelopment of the site.

1.1.2 To this end a desk-based assessment has been undertaken in accordance with Jomas Associates Limited's email proposal dated 8th October 2021.

1.2 Proposed Development

1.2.1 The proposed development is understood to comprise demolition of the existing garage building and construction of a single detached two storey (lower ground and ground floors) residential property with associated parking and private landscaping. The lower ground floor will be constructed at the level of the existing basement.

1.2.2 For the purposes of human health risk assessment, the site is considered "residential with plant uptake".

1.2.3 Plans of the proposed development are provided as Figure 5.

1.2.4 For the purpose of geotechnical assessment, it is considered that the project could be classified as a Geotechnical Category (GC) 2 site in accordance with BS EN 1997 Part 1. GC 2 projects are defined as involving:

-) Conventional structures.
-) Quantitative investigation and analysis.
-) Normal risk.
-) No difficult soil and site conditions.
-) No difficult loading conditions.
-) Routine design and construction methods.

1.2.5 This will be reviewed at each stage of the project.

1.3 Objectives

1.3.1 The objectives of Jomas Associates Limited's investigation were as follows:

-) To present a description of the present site status, based upon the published geology, hydrogeology and hydrology of the site and surrounding area;
-) To review readily available historical information (i.e., Ordnance Survey maps and database search information) for the site and surrounding areas, with respect to potentially contaminative land uses;

-) To provide an assessment of the environmental sensitivity at the site and the surrounding area, in relation to any suspected or known contamination which may significantly affect the site and the proposed development;
-) To assess the potential presence of significant pollutant linkages, in accordance with the procedures set out within Part IIA of the Environmental Protection Act 1990, associated statutory guidance and current best practice including the EA report R&D CLR 11;
-) To identify and assess geotechnical issues that may affect the site.

1.4 Scope of Works

1.4.1 The following tasks were undertaken to achieve the objectives listed above:

-) A walkover survey of the site;
-) A desk study, which included the review of third party historical Ordnance Survey maps and an environmental database report (attached in Appendix 2 and Appendix 3);
-) The compilation of this report, which collects and discusses the above data, and presents an assessment of the site conditions, conclusions and recommendations.

1.5 Supplied Documentation

1.5.1 Jomas Associates have not been supplied with any previously produced reports at the time of writing this report.

1.6 Limitations

1.6.1 Jomas Associates Ltd has prepared this report for the sole use of Hobbs Close Garage in accordance with the generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon by any other party without the explicit written agreement of Jomas Associates Limited. No other third-party warranty, expressed or implied, is made as to the professional advice included in this report. This report must be used in its entirety.

1.6.2 The records search was limited to information available from public sources; this information is changing continually and frequently incomplete. Unless Jomas Associates Limited has actual knowledge to the contrary, information obtained from public sources or provided to Jomas Associates Limited by site personnel and other information sources, have been assumed to be correct. Jomas Associates Limited does not assume any liability for the misinterpretation of information or for items not visible, accessible or present on the subject property at the time of this study.

1.6.3 Whilst effort has been made to ensure the accuracy of the data supplied, and analysis derived from it, there may be conditions at the site that have not been disclosed by the investigation, and could not therefore be taken into account. As with any site,

there may be differences in soil conditions between exploratory hole positions. Furthermore, it should be noted that groundwater conditions may vary due to seasonal and other effects and may at times be significantly different from those measured by the investigation. No liability can be accepted for any such variations in these conditions.

- 1.6.4 Any reports provided to Jomas Associates Limited have been reviewed in good faith. Jomas Associates Limited cannot be held liable for any errors or omissions in these reports, or for any incorrect interpretation contained within them.
- 1.6.5 This investigation and report has been carried out in accordance with the relevant standards and guidance in place at the time of the works. Future changes to these may require a re-assessment of the recommendations made within this report.
- 1.6.6 *Our investigations exclude surveys to identify the presence of injurious and invasive weeds.*
- 1.6.7 *This report is not an engineering design and the figures and calculations contained in the report should be used by the Structural Engineer, taking note that variations may apply, depending on variations in design loading, in techniques used, and in site conditions. Our recommendations should therefore not supersede the Engineer's design.***

2 SITE SETTING

2.1 Site Information

2.1.1 The site location plan is appended to this report in Figure 1, Appendix 1.

Table 2.1: Site Information

Name of Site	Hobbs Close Garage
Address of Site	Peascod Cottage, London Road, St Ippolyts SG4 7NJ
Approx. National Grid Ref.	519661,226317
Site Area (Approx)	0.06ha
Site Occupation	Vehicle maintenance garage
Local Authority	North Hertfordshire District Council

2.2 Walkover Survey

2.2.1 A site walkover survey was undertaken by Jomas Associates on 18th January 2022.

Table 2.2: Site Description

Area	Item	Details
On-site:	Current Uses:	The site is occupied by a single workshop structure, block construction with wood cladding. Exterior spaces are occupied predominantly by vehicles and vehicle parts. There is also a basement under the garage that runs the entire floor space of the upper floor with the same external dimensions. Vehicle fluids collected and stored in numerous containers.
	Evidence of historic uses:	There was no evidence of historic uses of the site.
	Surfaces:	Site is covered by building footprint and concrete hardstanding.
	Vegetation:	No vegetation on site. Numerous mature trees on surrounding plots.
	Topography/Slope Stability:	Access slopes down slightly into site. Site slopes down into site from the east and west. The south of the site holds a brick retaining wall approximately 0.8m high, with the northern boundary at the same height as the neighbouring field.
	Drainage:	Soakaway drainage noted around the site. Waste water is reportedly disposed of in adjacent field.

Area	Item	Details
	Services:	Site is served by electricity and mains water supply. Information from site indicates waste water drainage is disposed of in adjacent field.
	Controlled waters:	No controlled waters were noted on site.
	Tanks:	No formal tanks observed; vehicle fluids stored in containers/barrels.
Neighbouring land:	North:	Agricultural land.
	East:	Agricultural land.
	South:	Residential properties and agricultural land.
	West:	Agricultural land.

2.2.2 Key features noted during the walkover are shown on a site walkover plan in Figure 2, together with site photos, in Figure 3.

2.3 Anecdotal Information

2.3.1 The Client has provided Jomas with photographs taken during the sites most recent redevelopment reported to have taken place in 2008. The works appear to have lowered site level relative to neighbouring properties and involved removal of significant quantities of soil, likely to be associated with the basement construction. The exposed soil in the photographs appears to comprise natural, uncontaminated horizons.

2.3.2 Photographs are provided as Figure 4.

2.4 Historical Mapping Information

2.4.1 The historical development of the site and its surrounding areas was evaluated following the review of a number of Ordnance Survey historic maps, procured from GroundSure, and provided in Appendix 3 of this report.

2.4.2 A summary produced from the review of the historical map is given in Table 2.3 below. Distances are taken from the site boundary.

Table 2.3: Historical Development

Dates and Scale of Map	Relevant Historical Information	
	On Site	Off Site
1881/84 – 1:2,500/10,560	Site is vacant agricultural land.	Surrounding area is predominantly vacant agricultural land with occasional farm/residential properties. Road runs broadly north-south adjacent to the western site boundary. Smithy is shown 400m south of site.

Dates and Scale of Map	Relevant Historical Information	
	On Site	Off Site
1897/98 – 1:10,560/2,500	No significant changes.	Small structure is shown adjacent to the southern site boundary. Fewer farm structures shown 200m NW of site.
1922/24 – 1:10,560/2,500	No significant changes.	Adjacent building has been redeveloped and appears smaller than on previous map.
1947 – 1:10,560	No significant changes.	No significant changes.
1949 - 1:10,560	No significant changes.	Several large gravel pits are shown 700m SW and 1000m south of site.
1959 – 1:10,560	No significant changes.	No significant changes.
1976 – 1:10,560	No significant changes.	No significant changes.
1980/81 – 1:10,000/2,500	Unidentified structure shown in the centre of site.	Several small residential style structures shown to the south of site. Increase in residential development to the north of site. Gravel pits no longer shown and assumed infilled . Large sand pit identified 450-750m SW of site. Wymondsey Transforming Station is shown 750m NE of site.
1991/92 – 1:10,000/2,500	No significant changes.	No significant changes.
2001/03 – 1:10,000/1,250	No significant changes.	Structure on plot adjacent to the east no longer shown.

Potentially polluting/contaminating uses/activities shown in **bold**

2.4.3 Aerial photographs supplied as part of the GroundSure Enviro+GeoInsight report range from 1999 to 2019. These show a structure in the centre of the site, with several vehicles parked on site around the building. Surrounding land uses appear predominantly agricultural with some residential properties to the south.

2.4.4 The 2019 photograph indicates possible waste storage on the adjacent land to the east.

2.5 Past Land Use

2.5.1 Groundsure provide some information on past land use on and in the vicinity of the site. Table 2.4 below summarises the information provided, which is presented in further detail in the Enviro+Geoinsight in Appendix 2. Where the identified features have appeared on more than one map they have been counted multiple times and therefore the reported numbers may be higher than the actual count.

Table 2.4: Past Land Use

Type of Use	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Historical Industrial Land Uses	None reported	16No reported; nearest 286m SE for a gravel pit.	✓
Historical Tanks	None reported	3No reported; nearest 167m SE for an unspecified tank.	X
Historical Energy Features	None reported	None reported	X
Historical Petrol Stations	None reported	None reported	X
Historical Garages	None reported	None reported	X
Historical Military Land	None reported	None reported	X

* From a land contamination/site development perspective

2.6 Landfill, Waste and Potentially Infilled Surface Ground Workings

2.6.1 The Groundsure Enviro+Geosight Report provides information on active and historical landfills and waste sites. It also provides information on historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface; these features may or may not have been subsequently infilled. The following section summarises the information collected from the available sources.

Table 2.5: Landfill, Waste and Potentially Infilled Ground Surface Workings

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Active or Recent Landfill	None reported	1No reported 399m SW for Vicars Grove Pit – Landfill taking other wastes	✓
Historical Landfill	None reported	1No BGS record 362m NE for Tittendell Pit. 1No LA record 293m NE for refuse tip. 2No EA historical landfill records; nearest 304m NE for Tittendell for inert industrial, commercial household waste.	✓
Historical Waste Sites	None reported	None reported	X
Licensed Waste Sites	None reported	None reported	X
Waste Exemptions	None reported	9No reported; nearest 208m NW for recovery of textiles.	X
Potentially Infilled Surface Ground Workings	None reported	None reported	X

* From a land contamination/site development perspective

2.7 Current Industrial Land Use

2.7.1 The Groundsure Enviro+Geosight Report also provides information on various records relating to current industrial land use on and in the vicinity of the site. The following section summarises the information collected from the available sources.

Table 2.6: Current Industrial Land Use

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Recent Industrial Land Uses	1No reported for Hobbs Close Garage	4No reported; nearest 190m west as a pylon.	✓
Current or Recent Petrol Stations	None reported	None reported	X
High Voltage Electricity Cables	None reported	None reported	X
High Pressure Gas Pipelines	None reported	None reported	X
Sites Determined as Contaminated Land	None reported	None reported	X
Control of Major Accident Hazards (COMAH) and Notification of Installations Handling Hazardous Substances (NIHHS) Sites	None reported	None reported	X
Regulated Explosive Sites	None reported	None reported	X
Hazardous Substance Storage/Usage	None reported	None reported	X
Historical Licensed Industrial Activities	None reported	None reported	X
Licensed Industrial Activities	None reported	None reported	X
Licensed Pollutant Release	None reported	1No reported 438m north for gas processes	X
Radioactive Substance Authorisations	None reported	None reported	X
Licensed Discharge to Controlled Waters	None reported	2No reported; nearest 20m SE for "unspecified". Also 197m NW for sewage discharges.	✓
Pollutant Release to Surface Waters (Red List)	None reported	None reported	X
Pollutant Release to Public Sewer	None reported	None reported	X
List 1 and List 2 Dangerous Substances	None reported	None reported	X
Pollution Incidents	None reported	None reported	X
Pollution Inventory Substances	None reported	None reported	X
Pollution Inventory Waste Transfers	None reported	None reported	X
Pollution Inventory Radioactive Waste	None reported	None reported	X

* From a land contamination/site development perspective

2.8 Tunnels and Railways

2.8.1 The Groundsure Enviro+Geosight Report provides information on railway tunnels and railways on and within the vicinity of the site, as summarised in the table below.

Table 2.7: Tunnels and Railways

Feature	On site	Off-site (within 250m of site, unless stated otherwise)	Potential to Impact Site*
Underground Railways (London)	None reported	None reported	X
Underground Railways (Non-London)	None reported	None reported	X
Railway Tunnels	None reported	None reported	X
Historical Railway and Tunnel Features	None reported	None reported	X
Royal Mail Tunnels	None reported	None reported	X
Railways, Crossrail and HS2	None reported	None reported	X

* From a land contamination/site development perspective

2.9 Previous Site Investigations

2.9.1 Jomas Associates are not aware of any previous site investigations undertaken at the site prior to the writing of this report.

2.10 Local Authority Information

2.10.1 Jomas have made a request to North Hertfordshire District Council for information relating to contamination on the site and surrounding areas. A copy of the correspondence is included in Appendix 6.

2.10.2 A response is pending.

2.11 Planning Information

2.11.1 A review of the local authority's planning portal was undertaken on 18th January 2022 at <https://pa2.north-herts.gov.uk/online-applications/searchResultsBack.do?action=back>.

2.11.2 Several applications were identified, predominantly for domestic building works. Applications for the study site were identified for the demolition of the current garage and construction of a detached residential property. No documents could be identified relating to the applications on site and no ground investigation information was identified associated with other nearby applications.

3 GEOLOGICAL & ENVIRONMENTAL SETTING

3.1.1 The following section summarises the principal environmental resources (geological, hydrogeological and hydrological) of the site and its surroundings.

3.1.2 The data discussed herein is generally based on the information given within the Enviro+Geoinsight Report and published information provided by the Environment Agency and British Geological Survey.

3.2 Solid and Drift Geology

3.2.1 The British Geological Survey indicates that the south-west corner of site is underlain by glaciolacustrine deposits with the remainder of the site underlain by glaciofluvial deposits.

3.2.2 The BGS describes glaciolacustrine deposits as consisting of:

“Glaciolacustrine deposits were laid down in glacial lakes. Composed of coarse-grained bedload and suspended fine-grained material transported by meltwater flowing into lakes bordering the glacier. Deposits include sands, silts and clays of deltaic origin, shoreface sand and gravel and lake bottom varved, fine-grained (fine sand, silt and clay) sediments. Dropstones from floating ice are a common feature. Silt and clay, laminated, commonly rich in organic matter, locally with interbedded peat.”

3.2.3 The BGS describes glaciofluvial deposits as consisting of:

“Glaciofluvial deposits were deposited by meltwater streams. Includes mostly coarse-grained sediments (i.e. sand and gravel) with some finer-grained layers (i.e. clay and silt). Sand and gravel, locally with lenses of silt, clay or organic material.”

3.2.4 Given the similarity in lithological descriptions it may be difficult to differentiate the superficial deposits on site. The glaciolacustrine deposits may also overlie further glaciofluvial deposits.

3.2.5 These superficial deposits overlie solid deposits of the Holywell Nodular Chalk Formation and New Pit Chalk Formation (Undifferentiated). These deposits are described by BGS as below:

Holywell Nodular Chalk Formation

“Generally hard nodular chalks with thin flaser marls and significant proportions of shell debris in part. Base marked by the interbedded coloured marl and chalk succession characteristic of the Plenius Marls Member (a term applicable in both the Southern and Northern Provinces). The Melbourn Rock Member above the base can be distinguished by its lack of shell material.

New Pit Chalk Formation

“Principally blocky, white firm to moderately hard chalk with numerous marls or paired marl seams. Flint occurs sporadically in the upper part in

the deeper basin areas of the Southern Province. In some localities flint, in seams, occurs towards the base of the formation most notable over structural highs, towards the margins of the outcrop and within the "Transitional" Province."

3.2.6 Although artificial deposits are not reported within the site they are noted 299m to the south-east. In addition, given the identified site history a thickness of Made Ground should be expected.

3.2.7 A buried channel or valley margin is reported 126m north-east of site.

3.3 British Geological Survey (BGS) Borehole Data

3.3.1 As part of the assessment, publicly available BGS borehole records were obtained and reviewed from the surrounding area.

3.3.2 No publicly available boreholes are reported within the same reported geology as the site.

3.4 Hydrogeology & Hydrology

3.4.1 General information about the hydrogeology of the site was obtained from the EnviroInsight and / or the DEFRA "MAGIC" website.

Groundwater Vulnerability

3.4.2 The EA operates a classification system to categorise the importance of groundwater resources (aquifers) and their sensitivity to contamination. Aquifers were formerly classified as major, minor and non-aquifers, based on the amenity value of the resource. A major aquifer is a significant resource capable of producing large quantities of water suitable for potable supply. Minor aquifers produce water in varying quantities or qualities, and if utilised are of local importance. Non aquifers are low permeability strata, which contain no significant exploitable groundwater and have very limited capacity to transmit contaminants.

3.4.3 Since 1 April 2010, the EA's Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. This comprises;

) **Secondary A** - 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;

) **Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

) **Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means

that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

-)] **Principal Aquifer** – this is a formation with a high primary permeability, supplying large quantities of water for public supply abstraction.
-)] **Unproductive Strata** - These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Source Protection Zones (SPZ)

3.4.4 In terms of aquifer protection, the EA generally adopts a three-fold classification of SPZs for public water supply abstraction wells.

-)] Zone I - or 'Inner Protection Zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source.
-)] Zone II - or 'Outer Protection Zone' is defined by a 400-day travel time to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants.
-)] Zone III - or 'Total Catchment' is the total area needed to support removal of water from the borehole, and to support any discharge from the borehole.

Hydrology

3.4.5 The hydrology of the site and the area covers water abstractions, rivers, streams, other water bodies and flooding.

3.4.6 The Environment Agency defines a floodplain as the area that would naturally be affected by flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

3.4.7 There are two different kinds of area shown on the Flood Map for Planning. They can be described as follows:

Areas that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded:

-)] from the sea by a flood that has a 0.5 per cent (1 in 200) or greater chance of happening each year;
-)] or from a river by a flood that has a 1 per cent (1 in 100) or greater chance of happening each year.

(For planning and development purposes, this is the same as Flood Zone 3, in England only.)

-)] The additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1 per cent (1 in 1000) chance of occurring each year.

(For planning and development purposes, this is the same as Flood Zone 2, in England only.)

- 3.4.8 These two areas show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.
- 3.4.9 Outside of these areas flooding from rivers and the sea is very unlikely. There is less than a 0.1 per cent (1 in 1000) chance of flooding occurring each year. The majority of England and Wales falls within this area. (For planning and development purposes, this is the same as Flood Zone 1, in England only.)
- 3.4.10 Some areas benefit from flood defences and these are detailed on Environment Agency mapping.
- 3.4.11 Flood defences do not completely remove the chance of flooding, however, and can be overtopped or fail in extreme weather conditions.

Table 3.1: Summary of Hydrogeology & Hydrology

Feature		On Site	Off Site	Potential Receptor?
Aquifer	Superficial:	Secondary A (majority of site) Unproductive (SW corner)	Secondary A Unproductive Secondary Undifferentiated	✓
	Solid:	Principal	Principal	✓
Abstractions	Ground water	None	8No reported; nearest 1407NE (historical) Nearest active abstraction reported 1939m east for potable supply.	✓
	Surface water	None	None reported	X
	Potable	None	3No reported; nearest 1407NE (historical) Nearest active abstraction reported 1939m east for potable supply.	✓
Source Protection Zone		Zone 3 Total Catchment	Zone 2 Outer Catchment	✓
Surface Water Features		None	8No Water Network features reported; nearest 173m east as Ippollyts Brook	✓
Flood Risk	EA Flood Zone 2	No	-	-

Feature	On Site	Off Site	Potential Receptor?
EA Flood Zone 3	No	-	-
RoFRaS	No	-	-
Flood Defences	There are no areas benefiting from flood defences within 250m of the study site.		-
Groundwater Flooding	Moderate on site. Moderate-high off site.		-

3.4.13 Ground levels in the vicinity appear to slope down towards Ippolits Brook to the east of the site. Ground levels at the site appear to be at around 80m AOD, and ground levels near the brook. If in hydraulic continuity with the Brook, groundwater may be at a depth of around 5m bgl.

3.5 Sensitive Land Uses

3.5.1 The site is located within a Nitrate Vulnerable Zone.

3.5.2 A Nitrate Vulnerable Zone (NVZ) is a conservation designation of the Environment Agency for areas of land that drain into nitrate polluted waters, or waters which could become polluted by nitrates. Nitrate Vulnerable Zones were introduced by the UK government in response to the EU mandate that all EU countries must reduce the nitrate in Drinking Water to a maximum of 50 mg/l.

3.5.3 The NVZs cover large areas of land that have been identified as exceeding or being at risk of exceeding 50 mg NO₃/l.

3.5.4 The site is located within the London Green Belt.

3.5.5 The site is located within a SSSI Impact Risk Zone. Proposed redevelopment of the site is unlikely to require consultation unless part of a wider scale industrial redevelopment.

3.5.6 Vicars Grove Ancient & Semi-Natural Woodland is reported 397m south-west of site.

3.5.7 No other sensitive land use was identified within 1km of the site.

3.6 Radon

3.6.1 As reported, the site is not within a Radon affected area, as less than 1% of properties are above the action level.

3.6.2 Consequently, no radon protective measures are necessary in the construction of new dwellings or extensions as described in publication BR211 (BRE, 2015).

4 POSSIBLE GEOLOGICAL HAZARDS

4.1 Database Information Review

4.1.1 The following are brief findings extracted from the GroundSure Enviro+Geosight Report, that relate to factors that may have a potential impact upon the engineering of the proposed development.

Table 4.1: Geological Hazards

Potential Hazard	Site check Hazard Rating	Details	Further Action Required?
Shrink swell clays	Negligible (east of site)	Ground conditions predominantly non-plastic.	No
	Low (west of site)	Ground conditions predominantly medium plasticity.	No
Running sands	Very low (east of site)	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.	No
	Negligible (west of site)	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on land use due to running conditions.	No
Compressible deposits	Negligible (east of site)	Compressible strata are not thought to occur.	No
	Moderate (west of site)	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.	Ground investigation recommended if redevelopment proposed.
Collapsible Deposits	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.	No
Landslides	Very low	Slope instability problems are not likely to occur but considerations to potential problems from adjacent areas impacting on the site should always be considered.	No
Ground dissolution soluble rocks	Very low	Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.	No
Coal mining	None	The study site is not located within the specified search distance of an identified coal mining area.	No
Non-coal mining	Chalk - on site	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered.	No

- 4.1.2 In addition, the GeoInsight report notes the following:
-) No surface or underground ground working features are reported within 250m of the site.
 -) 2No “BritPits” reported within 500m; nearest 324m south-east for Little Almshoe Gravel Pit.
 -) 2No historical mineral planning areas reported within 500mn of the site; nearest 168m east for sand and gravel.
 -) No natural cavities are reported within 500m of the site.
- 4.1.3 Existing hardstanding and foundations will need to be removed and grubbed out ahead of the development. This may require the use of hydraulic breaking.
- 4.1.4 The clearance of the site, including removal of foundations and services is likely to increase the depth of Made Ground on the site.
- 4.1.5 Foundations should not be formed within Made Ground or organic rich material (e.g. topsoil or peat deposits) due to the unacceptable risk of total and differential settlement.
- 4.1.6 Foundations must be designed so as not to load nor undermine adjacent boundary walls and buildings.
- 4.1.7 The presence of Made Ground derived from demolition material may be a source of elevated sulphate, associated with plaster from the previous structures. If such levels are noted, sulphate resistant concrete may be required.
- 4.1.8 The resultant thickness of Made Ground and the potential for clays beneath the proposed footprint may mean that a suspended floor slab would be required.
- 4.1.9 Although soluble rocks are noted to exist immediately beneath the site they are not considered to pose a significant risk.
- 4.1.10 The use of soakaway drainage should not be used without an assessment of the underlying chalk.
- 4.1.11 A geotechnical investigation is recommended to inform foundation design.

5 QUALITATIVE RISK ASSESSMENT

5.1 Legislative Framework

5.1.1 A qualitative risk assessment has been prepared for the site, based on the information collated. This highlights the potential sources, pathways and receptors. Intrusive investigations will be required to confirm the actual site conditions and risks.

5.1.2 Under Part IIA of the Environmental Protection Act 1990, the statutory definition of contaminated land is:

"land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) significant pollution of controlled waters is being caused, or there is significant possibility of such pollution being caused."

5.1.3 The Statutory Guidance provided in the DEFRA Circular 04/2012 lists the following categories of significant harm to **human health**:

-) death; life threatening diseases (e.g. cancers); other diseases likely to have serious impacts on health; serious injury; birth defects; and impairment of reproductive functions.

5.1.4 Other health effects may also be considered by the local authority to constitute significant harm with a wide range of conditions that may or may not constitute significant harm (alone or in combination) including: physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts.

5.1.5 In deciding whether or not land is contaminated land on grounds of significant possibility of significant harm to human health there are four categories to be considered. Categories 1 and 2 would encompass land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health. Categories 3 and 4 would encompass land which is not capable of being determined on such grounds.

5.1.6 For non-human receptors the following types of harm should be considered to be significant harm:

Ecological System Effects

-) Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or
-) Harm which significantly affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.

-) In the case of European sites, harm should also be considered to be significant harm if it endangers the favourable conservation status of natural habitats at such locations or species typically found there. In deciding what constitutes such harm, the local authority should have regard to the advice of Natural England and to the requirements of the Conservation of Habitats and Species Regulations 2010.

Property Effects

-) Crops: A substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.
-) Buildings: Structural failure, substantial damage or substantial interference with any right of occupation. The local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended. In the case of a scheduled Ancient Monument, substantial damage should also be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.

- 5.1.7 Contaminated land will only be identified when a 'pollutant linkage' has been established.
- 5.1.8 A 'pollutant linkage' is defined in Part IIA as:
"A linkage between a contaminant Source and a Receptor by means of a Pathway".
- 5.1.9 Therefore, this report presents an assessment of the potential pollutant linkages that may be associated with the site, in order to determine whether additional investigations are required to assess their significance.
- 5.1.10 In accordance with the National Planning Policy Framework, where development is proposed, the developer is responsible for ensuring that the development is safe and suitable for use for the purpose for which it is intended, or can be made so by remedial action. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:
-) whether the land in question is already affected by contamination through source – pathway – receptor pollutant linkages and how those linkages are represented in a conceptual model;
 -) whether the development proposed will create new linkages, e.g. new pathways by which existing contaminants might reach existing or proposed receptors and whether it will introduce new vulnerable receptors; and
 -) what action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable development and future occupancy of the site and neighbouring land.

- 5.1.11 A potential developer will need to satisfy the Local Authority that unacceptable risk from contamination will be successfully addressed through remediation without undue environmental impact during and following the development.

5.2 Conceptual Site Model

- 5.2.1 On the basis of the information summarised above, a conceptual site model (CSM) has been developed for the site. The CSM is used to guide the investigation activities at the site and identifies potential contamination sources, receptors (both on and off-site) and exposure pathways that may be present. The identification of such potential “pollutant linkages” is a key aspect of the evaluation of potentially contaminated land.
- 5.2.2 The site investigation is then undertaken in order to prove or disprove the presence of these potential source-pathway-receptor linkages. Under current legislation an environmental risk is only deemed to exist if there are proven linkages between all three elements (source, pathway and receptor).
- 5.2.3 This part of the report lists the potential sources, pathways and receptors at the site, and assesses based on current and future land use, whether pollution linkages are possible.
- 5.2.4 Potential pollutant linkages identified at the site are detailed below:

Table 5.1: Potential Sources, Pathways and Receptors

Source(s)	Pathway(s)	Receptor(s)
)] Potential for contaminated ground associated with current site use – on site (S1) - o Car maintenance garage)] Potential ground gas generation from nearby active/historic landfills – off site (S2) - o 293m NE (refuse tip) - o 304m NE for Tittendell - o 362m NE (Tittendell Pit) - o 399m SW for Vicars Grove Pit	)] Ingestion and dermal contact with contaminated soil (P1))] Inhalation or contact with potentially contaminated dust and vapours (P2))] Leaching through permeable soils, migration within the vadose zone (i.e., unsaturated soil above the water table) and/or lateral migration within surface water, as a result of cracked hardstanding or via service pipe/corridors and surface water runoff. (P3))] Horizontal and vertical migration of contaminants within groundwater (P4))] Accumulation and Migration of Soil Gases (P5))] Permeation of water pipes and attack on concrete foundations by aggressive soil conditions (P6)	)] Construction workers (R1))] Maintenance workers (R2))] Neighbouring site users (R3))] Future site users (R4))] Building foundations and on site buried services (water mains, electricity and sewer) (R5))] Controlled waters (R6) - o Secondary A aquifer - o Principal Aquifer - o SPZ/abstraction - o Surface water feature 173m east

5.3 Qualitative Risk Estimation

5.3.1 Based on information previously presented in this report, a qualitative risk estimation was undertaken.

5.3.2 For each potential pollutant linkage identified in the conceptual model, the potential risk can be evaluated, based on the following principle:

Overall contamination risk = Probability of event occurring x Consequence of event occurring

5.3.3 In accordance with CIRIA C552, the consequence of a risk occurring has been classified into the following categories:

-) Severe
-) Medium
-) Mild
-) Minor

5.3.4 The probability of a risk occurring has been classified into the following categories:

-) High Likelihood
-) Likely
-) Low Likelihood
-) Unlikely

5.3.5 This relationship can be represented graphically as a matrix (Table 5.2).

Table 5.2: Overall Contamination Risk Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
	Likely	High Risk	Moderate Risk	Moderate Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate Risk	Low Risk	Very Low Risk
	Unlikely	Low Risk	Low Risk	Very Low Risk	Very Low Risk

5.3.6 The risk assessment process is based on guidance provided in CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*. Further information including definitions of descriptive terms used in the risk assessment process is included in Appendix 4.

5.3.7 The degree of risk is based on a combination of the potential sources and the sensitivity of the environment. The risk classifications can be cross checked with reference to Table A4.4 in Appendix 4.

5.3.8 Hazard assessment was also carried out, the outcome of which could be:

-) Urgent Action (UA) required to break existing source-pathway-receptor link.
-) Ground Investigation (GI) required to gather more information

-) Watching Brief there is no evidence of potential contamination but the possibility of it exists and so the site should be monitored for local and olfactory evidence of contamination.
-) No action required (NA)

5.3.9 The preliminary risk assessment for the site is presented in Table 5.3 below.

SECTION 5
QUALITATIVE RISK ASSESSMENT

Table 5.3: Preliminary Risk Assessment for the Site

Sources	Pathways (P)	Receptors	Consequence of Impact	Probability of Impact	Risk Estimation	Hazard Assessment
)] Potential for contaminated ground associated with current site use – on site (S1) - o Car garage)] Potential ground gas generation from nearby active/historic landfills – off site (S2) - o 293m NE (refuse tip) - o 304m NE for Tittendell - o 362m NE (Tittendell Pit) - o 399m SW for Vicars Grove Pit	)] Ingestion and dermal contact with contaminated soil (P1))] Inhalation or contact with potentially contaminated dust and vapours (P2))] Permeation of water pipes and attack on concrete foundations by aggressive soil conditions (P6)	)] Construction workers (R1))] Maintenance workers (R2))] Neighbouring site users (R3))] Future site users (R4))] Building foundations and on site buried services (water mains, electricity and sewer) (R5)	Medium	Likely	Moderate	Ground investigation or adoption of pre-emptive remedial measures
	)] Accumulation and migration of soil gases (P5)		Severe	Low	Moderate	
	)] Leaching through permeable soils, migration within the vadose zone (i.e., unsaturated soil above the water table) and/or lateral migration within surface water, as a result of cracked hardstanding or via service pipe/corridors and surface water runoff. (P3))] Horizontal and vertical migration of contaminants within groundwater (P4)	)] Neighbouring site users (R3))] Building foundations and on site buried services (water mains, electricity and sewer) (R5))] Controlled waters (R6) - o Secondary A aquifer - o Principal Aquifer - o SPZ/abstraction - o Surface water feature 173m east	Medium	Low	Moderate	

- 5.3.10 It should be noted that the identification of potential pollutant linkages does not necessarily signify that the site is unsuitable for its current or proposed land use. It does however act as a way of focussing data collection at the site in accordance with regulatory guidance in CLR 11.

5.4 Outcome of Risk Assessment

- 5.4.1 The risk estimation matrix indicates a moderate risk as defined above.
- 5.4.2 A review of earliest available (1881) historical maps indicates that the site was comprised of agricultural land until the 1980 map edition when a structure is shown centrally on site. No further changes are shown up to the most recent 2003 map edition however the site owner informed the Jomas engineer that the site was redeveloped in 2008.
- 5.4.3 The surrounding areas are shown in predominantly agricultural use throughout the mapped history, with few industrial features of note. Several large gravel pits are shown from 700m south-west of site (1949, no longer shown by 1980) and a large sand pit identified from 1980.
- 5.4.4 It is considered that the potential risks identified on site can be mitigated through a combination of the provision of a cover layer (permanent hard-standing or sub/topsoil cover layer over a geotextile membrane) and provision of basic gas protection measures in accordance with a “Characteristic Situation 2” classification as per BS8485 guidance.
- 5.4.5 In addition, a watching brief should be maintained throughout the development works and any soils displaying visual/olfactory evidence of hydrocarbon or volatile contaminants should be removed from site under the supervision of a suitable qualified environmental engineer, followed by appropriate validation sampling and analysis.
- 5.4.6 It is considered that the removal of any soils displaying visual/olfactory evidence of hydrocarbons or volatile contaminants would suitably mitigate risks to controlled waters.
- 5.4.7 A Remediation Strategy will be required to define the requirements of the remedial measures set out above.

6 REFERENCES

- BRE Report BR211; Radon: Guidance on protective measures for new buildings, 2015
- Code of Practice for Ground Investigations BS5930: 2015
- CL:AIRE; Petroleum Hydrocarbons in Groundwater, 2017
- Environment Agency (2004) *Model procedures for the management of land contamination*. CLR11. Bristol: Environment Agency
- Groundsure Enviro+Geoinsight Report Ref HMD-377-8428527 – January 2022
- Investigation of Potentially Contaminated Sites – Code of Practice BS10175: 2011
- Ministry of Housing, Communities & Local Government: *National Planning Policy Framework*. February 2019
- Department of Environment Industry Profiles (1996) – Road Vehicle Fuelling, Service and Repair ISBN 1 85112 305 9

APPENDICES

APPENDIX 1 – FIGURES

APPENDIX 2 – GROUNDSURE REPORT

APPENDIX 3 – OS HISTORICAL MAPS

APPENDIX 4 – QUALITATIVE RISK ASSESSMENT METHODOLOGY

APPENDIX 5 – LOCAL AUTHORITY CORRESPONDENCE

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