MARTIN
ENVIRONMENTAL
SOLUTIONS LTD

Contaminated Land Phase One Desk Study for proposed conversion of storage building to Holiday Cottage at Beacon Fell View Holiday Park, 110 Higher Road, Longridge, PR3 2TF.

Prepared for

Graham Anthony Associates,
2 Croston Villa,
High Street,
Garstang,
Preston,
PR3 1EA.

July 2025

Summary

This report consists of a phase one contaminated land desk study produced in support of planning application for the conversion of an existing stone storage building into a holiday cottage at Beacon Fell View Holiday Park, 110 Higher Road, Longridge, PR3 2TF.

Following the site walkover and review of the available information it has been concluded that there is no contamination either on or off site that is likely to present a significant risk of significant harm to the identified receptors and therefore the site is considered to be safe and suitable for the intended use.

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

Contents

Introduction

Martin Environmental Solutions has been commissioned, to carry out a phase one contaminated land desk study report in relation to the proposed conversion of a stone storage building into a holiday cottage at Beacon Fell View Holiday Park, 110 Higher Road, Longridge, PR3 2TF.

Aims and Objectives of the report

The aims and objectives of this report are as follows:

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

Scope of works

This report has been written in line with the 'BS 10175: 2011+A2: 2017 Investigation of potentially contaminated sites – Code of Practice' and Land Contamination Risk Management (LCRM).

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

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

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

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

The Site:

Site Address: Beacon Fell View Holiday Park, 110 Higher Road, Longridge, PR3 2TF.

Grid reference: 361677, 438103

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

Current Site use:

The site currently consists of stone-built storage building in the centre of the wider holiday park. Existing holiday lodges are located to the east and south, the main access road is to runs along the western boundary. The main reception, pool and entertainment are is located to the northwest. A welfare building is located to the north of the site beyond a side track.

Research

Details of Research

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

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

Principle sources of this information have been:

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

Site History

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

Mapping Year	Changes on Site	Changes off Site
1847	The site lies within the larger Nook Field development	A reservoir is located 153m north of the site, still present today. Sandstone quarries re shown to the northeast, 183m and 307m away. These now form a recent housing development. To the southwest is Tootle Height Sandstone Quarry and a smithy is located near the entrance 330m away. The edge of the quarry ~300m away forms part of the wider holiday park. The area is predominantly agricultural. The Nook Field development consists of a large building to the southwest of the development one to the northwest and three further away to the northeast.
1892	A small building appears to be present to the north of the development	Nook field is now Nook Fold and the surrounding area to the north and east is now a quarry. Another smithy is present ~80m to the northwest. The reservoir to the north is Dilworth reservoir while to the south a new reservoir, Spade Mill reservoir has been built 450m way to the nearest bank. A tan yard is located 500m southwest of the site.
1910-12	The building on site has been expanded to the south forming the current footprint.	No Significant changes. An above ground tank is shown to the north ~50m from the site. The Smithy's are no longer present.
1932	No Change	The surrounding quarries to the north, east and west are all shown as over grown with trees. Spade Mill Reservoir has been reduced in size with a wall built around it.
1951	No Change	No Significant changes.

1967-69	No Change	All quarries are finally identified as disused.
1975	No Change	Beacon Fell caravan Park is now present surrounding the site.
1991-94	No Change	The barn to the north has been extended to the north. A water course is shown running along the southern boundary into a sink which then flows to the southeast and across the field. Electricity lines are shown to the east 200m away. A well is also shown to the east of the barns on site.
2001-03	No Change	The quarry to the far east is identified as disused workings with a large pond present.
2010	No Change	The caravan site is clearly shown with lodges present. The houses on the quarry site to the east are present.
2025	No Change	No Significant Changes
Aerial photos	No changes shown	No significant changes shown, there are three gas tanks located to the east of the swimming pool 120m away.

Regulatory Information

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

No permitted activities that have been identified within 500m of the site as defined in the Environmental Permitting (England and Wales) Regulations 2016 or previous legislation.

Only one pollution incident has been identified in the surrounding area, located 345m west of the site in July 2023 it involved slurry and had a significant impact on the water environment.

Only one discharge consent is reported, located 321m west of the site. This was linked to the water company and revoked in 2018.

The above identified sites are unlikely to impact on the development site given the nature, age and locations.

One active landfill site record has been found in the area, located 388m west at Lords Delph Quarry operated by William Pye and taking non-biodegradable waste. One Historic landfill record is identified326m southwest at Hollins Hall Farm, Tan Yard Lane for inert, household waste and revoked in 1993.

Seven waste exemptions have been identified, all at Hill Top Farm, Acre Lane and cover burning of waste in the open, depositing dredging waste, treatment of waste wood, use of waste in construction, spreading of plant matter and burning waste in a small appliance.

The only current potentially contaminative sites identified in the area are two covered storage tanks located 116m west and 234m northeast. These are unlikely to impact on the site.

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

> The various quarries, the nearest 23m northwest in 1892, which became 50m west by 1969 with more accurate records.

Geology and Hydrogeology

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Pennine Grit Member - Sandstone, overlaid by Till, Devensian, Diamicton. Inferred faults within the bedrock are identified 115m northeast and 198m north.

The information obtained on the hydrogeology of the area identifies the site as having a Secondary A aquifer in the bedrock 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, with a secondary undifferentiated aquifer in the superficial layer. .

Six groundwater abstraction licenses have been identified, the nearest is 1219m northeast at Longridge Golf Course, the only other active site is at Singleton Diary 1867m southwest of the site.

Four historic surface water abstraction licenses are identified, all were located 1353m northeast, at Longridge Golf Club.

The site is not located within a Source Protection Zone.

The Groundwater vulnerability is described as high on the surface and bedrock layers.

Hydrology

The nearest watercourse is located 52m east of the site running south.

The site is not within a floodplain, and the risk of flooding is classified as negligible.

Environmental Sensitivity

The only environmental sensitive sites identified are the College Wood ancient woodlands located 1273m south.

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

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

There are no Coal mining activities identified in the area, but the historic sandstone quarries are recorded.

Site Walkover

A site walkover was undertaken on the 24th June 2025 and confirmed much of what had already been identified from the information obtained on the site. The photographs in Appendix 3 provide some indication of the current layout and condition of the site.

The site is accessed from the main access road into the wider holiday park, and lies to the east of the access road. The access road and park slopes down from the main road into the park.

The land to the north and east of the site is higher than the building with retaining walls around the structure and along the southern section. This part of the site has a roadway leading to a number of static lodges and is grassed. To the south of the south is a grassed verge, roadway and more lodges.

The building is stone built, and split into two sections. The main part being two storeys to the north and the other single storey to the south. The single storey section is again split into two. The full building has concrete floors which are in a good sate of repair and the roof to both sections is made from metal corrugated sheets.

To the north, east and south of the buildings is a layer of clean stone bound by the kerbstones.

The buildings are currently used for storage of general DIY equipment. No staining was identified on the flooring of the building, which is to be removed and replaced as part of the development.

No signs of contamination, discoloration or olfactory evidence, dead or dying vegetation were seen during the walkover.

The current owners are unaware of any issues on site which could have led to contamination.

Conclusions

Potential Contaminants

Following a review of the information gathered on the history of the site and the surrounding area and following the site walkover, no contamination has been identified on or off site that is likely to pose a significant possibility of significant harm to the identified receptors.

Receptors and Pathways

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

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

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

Construction workers

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

Future users and visitors

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

Buildings

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

Watercourses

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

Neighbouring sites

If present on site contaminates have the potential to migrate to neighbouring sites through ground water or air blown transfer.

Conceptual Model

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

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

		CONSEQUENCE			
		Severe	Medium	Mild	Minor
PROBABILITY	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very low Risk	Very low Risk

Recommendations

As a result of the investigation into the historical use of the site and surrounding area no sources of contamination have been identified on or off site which present a significant possibility of significant harm to the any of the identified receptors, the site is therefore considered to be suitable for the intended use.

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

Figure 1 – Aerial Photograph

Appendix 1 – Groundsure Data

Appendix 2 – Historical Mapping

Appendix 3 – Site Walkover Photographs

Southwest façade with roadway in front.

Northwestern façade looking east, then west

The rear and eastern façade looking south then north

Inside the northern section of the building

Inside the southern section, middle door

Southern door.

Appendix 4 – Conceptual Model Risk Assessment

A Preliminary Risk Assessment is usually undertaken as part of a desk study, outlines potential risks posed by potential contamination to all receptors by defining plausible "pollution linkages" and developing a preliminary conceptual model (PCM).

The purpose of this model is to define all possible complete pollution linkages, where the requisite source – pathway – target elements are present, and these elements being defined as:

- a contaminant (source) is a hazardous substance or agent, present at levels that have the potential to cause harm or damage a receptor
- a pathway is the means by or through which a contaminant comes into contact with, or otherwise affects, the receptor
- a receptor (target) is an entity (human being, aquatic environment, flora and fauna etc) that is vulnerable to the adverse effects of the contaminant

This relationship is termed a "pollution linkage". It should be recognised that for a health or environmental risk to exist, all three elements of the relationship or linkage must be present, i.e.

- if there is no contaminant, or contaminant present at levels below those considered to be harmful or damaging to a receptor, then there can be no adverse effect on a receptor
- if there is no receptor present that can be adversely affected by a contaminant, no harm or damage can arise
- even where both a contaminant and a receptor are present, no harm or damage will occur if there is no pathway by or through which a linkage between the two can be established

The absence of one or more of each component (source, pathway, receptor) would prevent a pollutant linkage being established and there would be no significant environmental risk.

Consequence of Risk

CLASSIFICATION	DEFINITION	EXAMPLES
Severe	Highly elevated concentrations likely to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Short term risk of pollution of sensitive (H1/H2) water resource. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem. Catastrophic damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Major fish kill in surface water from large spillage of contaminants from site. Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity). Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).
Medium	Elevated concentrations which could result in "significant harm" or "significant possibility of significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Pollution of a highly sensitive (H1/H2) water resource. Significant damage/change to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability. Ingress of contaminants through plastic potable water pipes.
Mild	Exposure to human health unlikely to lead to "significant harm". Equivalent to EA Category 3 pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Pollution of moderately sensitive (M1/M2) water resources. Minor or short-lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population.	Exposure could lead to slight short-term effects (e.g. mild skin rash). Surface spalling of concrete.

	Significant damage to crops, buildings, structures and services ("significant harm" as defined in Circular 1/2006).	
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services. Pollution of low sensitive (L1/L2) water resource. Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.	The loss of plants in a landscaping scheme. Discoloration of concrete.

Probability of Risk Occurring

CLASSIFICATION	DEFINITION	EXAMPLES
High Likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.	a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden. b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years.
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.	a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space. b) Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.
Low Likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.	a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space. b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.	a) Elevated concentrations of toxic contaminants are present below hardstanding. b) Light industrial unit <10 yrs old containing a double skinned UST with annual integrity testing results available.

Calculation of Risk

		CONSEQUENCE			
		Severe	Medium	Mild	Minor
PROBABILITY	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very low Risk	Very low Risk

Appendix 5 Report limitations and exclusions

Basis of Risk Assessment

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

Limitations and Exceptions of this Report

This report was undertaken for at the request of Graham Anthony Associates and as such should not be entrusted to any third party without written permission of ***Martin Environmental Solutions***. No other third parties may rely upon or reproduce the contents of this report without the written permission of ***Martin Environmental Solutions***. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors do not owe them any duty of care or skill.

This report has been compiled from a number of sources, within the time constraints of the programme, which ***Martin Environmental Solutions*** believes to be trustworthy. However, ***Martin Environmental Solutions*** is unable to guarantee the accuracy of information provided by third parties.

The findings and opinions provided in this document are made in good faith and are based on data provided by third parties (Groundsure, Environment Agency, The Coal Authority, and Regulatory Bodies) and the report should be read in conjunction with the limitations on the document control form. The accuracy of map extracts cannot be guaranteed and it should be recognised that different conditions on /adjacent to the site may have existed between and subsequent to the various map surveys.

This report is prepared and written in the context of the purposes stated above and should not be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to this report in whole or in part after its submission.

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

All of the comments and opinions contained in this report, including any conclusions, are based on the information obtained by ***Martin Environmental Solutions***. The conclusions

drawn by ***Martin Environmental Solutions*** could therefore differ if the information obtained is found to be misrepresentative, inaccurate, or misleading. ***Martin Environmental Solutions*** reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

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

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

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

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

The copyright in this report and other plans and documents prepared by ***Martin Environmental Solutions*** is owned by them and no such report; plan or document may be reproduced, published or adapted without their written consent.

Complete copies of this report may be made and distributed by the Client as an expedient way in dealing with matters related to its commission.

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

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

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

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

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

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

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