

Desk Study Report

Lowfield Timber – Timber Treatment Tanks
LOWFIELD TIMBER FRAMES LTD



TIMBER TREATMENT TANKS – MONITORING WELLS DESK STUDY REPORT LOWFIELD TIMBER FRAMES LTD

Prepared for

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SY21 8JX

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VERSION CONTROL

VERSION	DATE	DESCRIPTION	CREATED BY	REVIEWED BY
1.0	22.06.2026		RT-A	NS

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1. INTRODUCTION

1.1. Brief

It is understood that Lowfield Timber Frames Ltd. (the 'Client') intends to apply to Shropshire Council for a Part A2 (IED) Environmental Permit for a wood preservation with chemical activity at their facility in Marton, Welshpool, SY21 8JX (hereafter referred to as the 'Site').

The permit application process requires the Operator to present a 'Baseline Report' of soil and groundwater conditions. To do so, suitable monitoring well locations need to be agreed with the regulator.

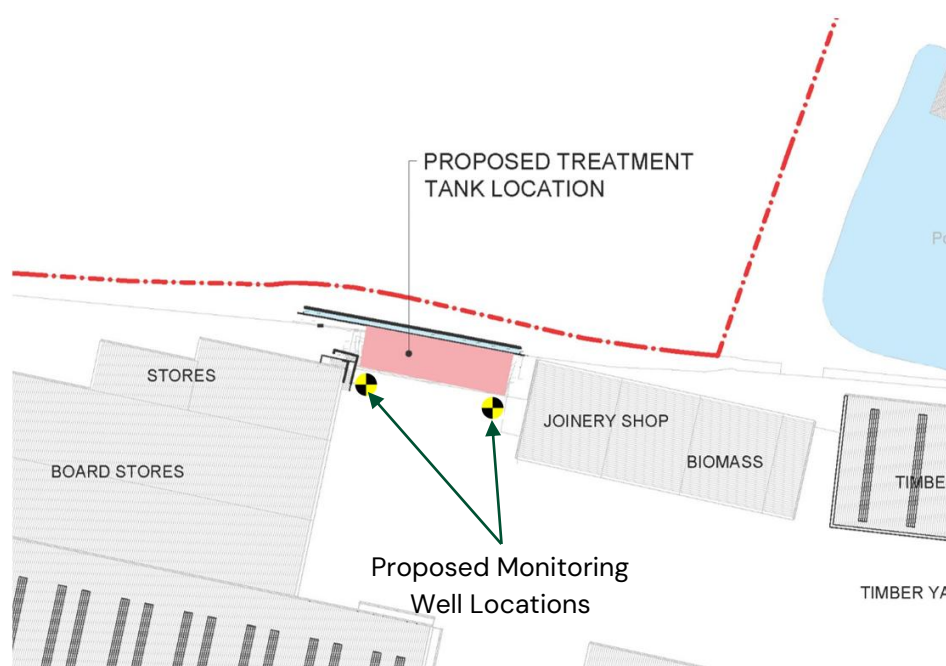
Ridge and Partners LLP (Ridge) have been commissioned by Lowfield Timber Framed Ltd. (the 'Client') to undertake a desk-based assessment of publicly available information to assess the geological, hydrogeological and hydrological setting of the Site. The results will be used to inform the most suitable locations for the proposed monitoring wells.

1.2. Previous Reports

It is proposed for an above ground timber treatment tank to be constructed along the northern boundary of the Site, presented on the below Tile 1. A previous sampling proposal was written and issued to Shropshire Council for review, which should be read in conjunction with this report:

- Environmental Health Resource Centre Limited (EHRC), Lowfield Timber, Soil and Groundwater Sampling Plan Technical Note (Dated: May 2026).

EHRC proposed the following monitoring well locations, presented on Tile 1 below. It is understood that Shropshire Council require a greater understanding in the direction of groundwater flow before accepting the proposed monitoring well locations which this document aims to provide.



Tile 1: Proposed tank and previously proposed monitoring well locations.

1.3. Report Scope and Limitation

This report is based upon a review of publicly and freely available information including geological, hydrogeological and hydrological maps and information from an environmental database search. The assessment is based on the proposed scope outlined in Section 1.1 and 1.2 above. The outcomes of this assessment could change if the proposals change.

The information contained in this report is intended for the use of **Lowfield Timber Frames Ltd.** Ridge can take no responsibility for the use of this information by any other party or for uses other than that described in this report.

2. SITE CONDITIONS

2.1. Site Location and Description

The Site comprises the Lowfield Timber Frames Ltd. production facility, which is located to the west of B4386, Marton, Welshpool SY21 8JX. The Site is approximately 0.75km north, north-west of Marton village and 7.7km south-east of Welshpool. The Site is approximately centred at National Grid Reference (NGR): SJ 29008 03185.

The Site comprises several brick, steel and wood clad buildings comprising the Lowfield Timber Frames Ltd. manufacturing facility and SJ Roberts Construction Ltd. headquarters (Lowfield Timber Frames Ltd.'s sister company). External concrete yard storage space is present between the buildings as well as car parking to the east. The Site is bounded by the Lowerfield Brook to the north which flows in an easterly and south-easterly direction before out falling to Marton Pool to the east of the Site. The B4386 bounds the Site to the east as well as the Lowfield Inn. Further afield in all directions is agricultural land.

The Site is slopes gently downhill from approximately 112m above ordnance level (mAOD) in the north-west to approximately 108m AOD in the south-east, at an average gradient of approximately 1v:36h.

3. PHYSICAL SETTING

3.1. Geology and Hydrogeology

Information obtained from the BGS^{1,2} indicates the Site to be underlain by a Superficial Deposit of Glaciofluvial Fan Deposits: gravel, sand and silt, directly underlain by bedrock of the Trewern Brook Mudstone Formation.

Table 3.1 below identifies the expected composition of the published strata and associated aquifer classification.

TABLE 3.1: RECORDED GEOLOGY AND HYDROGEOLOGY

SUPERFICIAL GEOLOGY

Unit Name	Glaciofluvial Fan Deposits – Devensian
Geology Description	Sand and gravel with subsidiary clay and silt.

¹British Geological Survey (2024). BGS Maps Portal: Map ID 9553300009553. Available at: <https://webapps.bgs.ac.uk/data/MapsPortal/map.html?id=9553300009553> (Accessed: June 2026);

²British Geological Survey (2024). *GeoIndex (Online GIS)*. Available at: <https://www.bgs.ac.uk/map-viewers/geoindex/> (Accessed: June 2026).

TABLE 3.1: RECORDED GEOLOGY AND HYDROGEOLOGY

Aquifer Classification	Secondary A
Aquifer Description	'Secondary A aquifers comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers'.

BEDROCK GEOLOGY

Unit Name	Trewern Brook Mudstone Formation
Geology Description	No description provided.
Aquifer Classification	Secondary B
Aquifer Description	'Secondary B aquifers are mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers'.

4. HYDROLOGY

4.1.1. Surface Water Features

Groundwater vulnerability – Medium

There are no surface water features recorded within the Site boundary, the nearest surface water feature relates to the Lowerfield Brook which bounds the Site to the immediate north and is understood to be contained within a concrete channel along the entire Site boundary. Several ponds are located within approximately 20m to the north and east of the Site. A large pond named Marton Pool is also located approximately 350m to the south-east of the Site, which forms the outfall for the Lowerfield Brook. The Site is within the Water Framework Directive (WFD) surface water body catchment named the 'Aylesford Bk – source to conf R Camlad' (Water Body ID: GB109054049440)³ which is with the Severn Uplands river basin.

5. GROUND WATER FLOW ASSESSMENT

With reference to the BGS's: Geology of Welshpool district: a brief explanation of the geological map Sheet 151 Welshpool⁴, the '*Glaciofluvial fan deposits occur usually on the lower parts of valley sides where tributary streams drop their loads of detritus on meeting the gentler incline or the major valley*'.

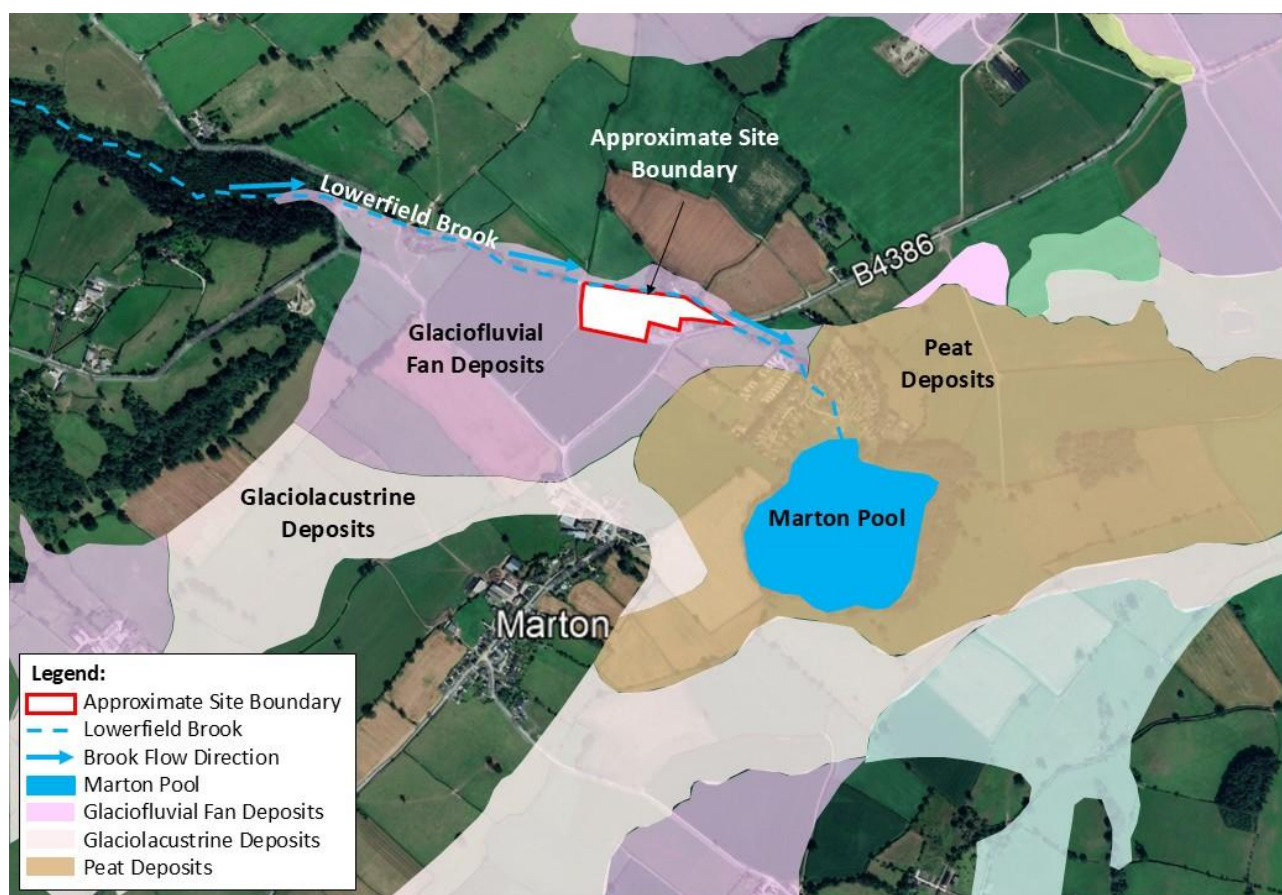
The report continues to state: '*As the proglacial lakes drained, or filled with sediment, they become the sites of swamps and reed beds, so that thin beds of peat formed upon them (e.g. Marton Pool)*'.

'Glaciofluvial and alluvial gravels associated with the Severn and Vyrnwy valleys are minor aquifers, and in many places they are in hydraulic continuity with the parent rivers. In such circumstances they present potential sources of water. The local presence of glaciolacustrine clay beneath the alluvium would act as an aquiclude'.

³ Market Operator Services Ltd (MOSL) (2024). *Water Body and Meters – Environmental Impact*. Available at: <https://mosl.co.uk/market-insight/market-performance/environmental-impact/water-body-and-meters> (Accessed: June 2026).

⁴ British Geological Survey (2007). *Geology of the Welshpool District: A Brief Explanation of the Geological Map. Sheet 151 Welshpool*. Keyworth, Nottingham: British Geological Survey.

Tile 2 below presents a map of the published Superficial Geology in the vicinity of the Site, along with the Lowerfield Brook, brook flow direction and Marton Pool. This is also presented on Figure 2.



Tile 2: Published Superficial Geology in Vicinity of the Site

As described above, the BGS consider the Glaciofluvial Fan Deposits to be in hydraulic continuity with the parent rivers in many places. Where Glaciolacustrine Clay is present beneath the alluvium, the BGS consider it to act as an aquiclude. In the case of the Site, it is likely that the Glaciofluvial Fan Deposits that underlie the Site are in turn underlain by Glaciolacustrine Deposits. As such, the Glaciolacustrine Deposits are likely acting as an aquiclude, forming an impermeable base, above which groundwater can collect within the overlying Glaciofluvial Fan Deposits. As the Glaciofluvial Fan Deposits are likely in hydraulic continuity with the Lowerfield Brook. The groundwater flow direction is therefore considered to most likely to be from south-west to north-east across the Site, supplying the Lowerfield Brook.

On a local scale, the section of Lowerfield Brook which bounds the Site is contained within a concrete channel. As such, it is likely that groundwater flow is redirected downstream (to the south-east) where it can rejoin with an open channel section of the Lowerfield Brook. The anticipated groundwater flow direction is presented on Tile 3 below:



Tile 3: Anticipated Groundwater Flow Direction

5.1.1. Proposed Borehole Locations

As presented above, given the section of Lowfield Brook adjacent to the proposed tank location is in a concrete channel, it is likely that groundwater flow in the immediate vicinity is approximately aligned to the brook's flow direction (west to east). As such, it is proposed for two monitoring wells to be installed. One shall be installed immediately upstream (to the west), and the other immediately downstream (to the east).

As the groundwater is anticipated to be held within the Glaciofluvial Fan Deposits, confined at the base by the Glaciolacustrine Clay acting as an aquiclude, it is proposed for the monitoring wells to be installed to a depth of approximately 10m below existing ground level (begl) or to the base of the Glaciofluvial Deposits, whichever is shallower.

In accordance with EHRC's proposals, following installation of the monitoring wells, a single round of groundwater monitoring will be undertaken where samples shall be sent to a laboratory and scheduled for a suite containing the determinands presented in Table 5.1 below. The results of the monitoring well installation and analysis will be presented in a Baseline Report which will be submitted to Shropshire Council, pursuant to the Part A2 (IED) Environmental Permit application.

TABLE 5.1: BASELINE GROUNDWATER ANALYSIS SUITE

PRODUCT	SUBSTANCE
Protim ME7 Clear	2-(2-Butoxyethoxy)ethanol
	cis-Permethrin
	trans-Permethrin
	Tebuconazole
	Propiconazole

6. CONCLUSION

It is understood that Lowfield Timber Frames Ltd. intends to apply to Shropshire Council for a Part A2 (IED) Environmental Permit for a wood preservation with chemical activity at their facility in Marton, Welshpool, SY21 8JX. A Baseline Report

The permit application process requires the Operator to present a 'Baseline Report' of soil and groundwater conditions. To do so, suitable monitoring well locations need to be agreed with the regulator.

A review of freely and publicly available information indicates that the Site is underlain by Superficial Geology of Glaciofluvial Fan Deposits which are in turn likely to be underlain by Glaciolacustrine Clay. It is considered most likely that groundwater is held within the permeable strata of the Glaciofluvial Fan Deposits and confined by the underlying Glaciolacustrine Clay. Groundwater is likely to be in hydraulic continuity with the Lowerfield Brook which bounds the Site to the north. As such, regional groundwater flow is likely to be approximately south-west to north-east across the Site towards the Lowerfield Brook. Locally, the Lowerfield Brook is contained within a concrete channel and therefore groundwater is likely to run parallel to the Lowerfield Brook flow direction (from west to east) until it meets a section in open channel.

It is therefore proposed for two monitoring wells to be installed, one immediately upstream (west) and one immediately downstream (east) of the proposed tank location. The findings of the investigation to install the monitoring wells and results of a single ground of groundwater monitoring will be discussed within the Baseline Report.

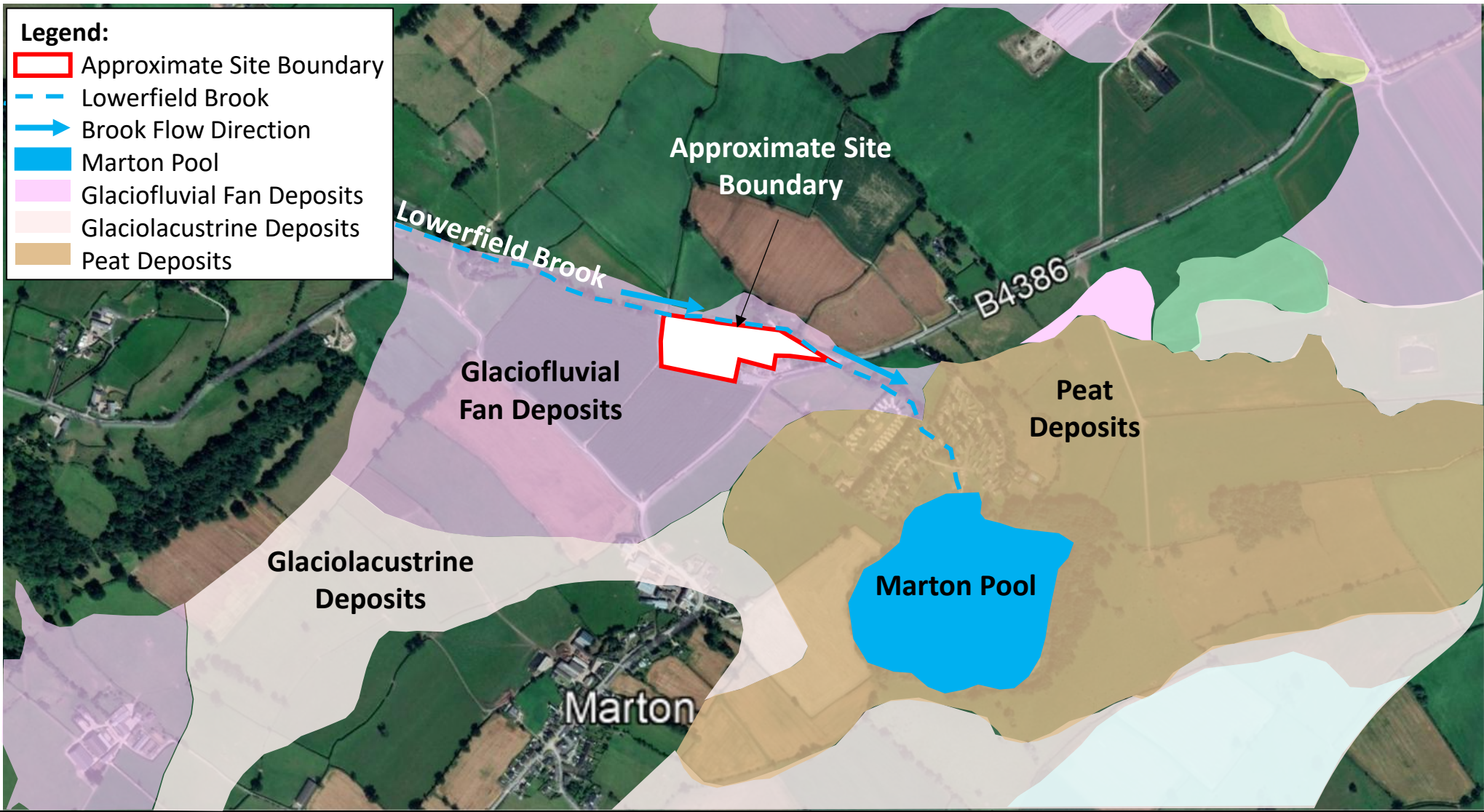
FIGURES

Legend:

Approximate Site Boundary



Project:		Lowfield Timber – Timber Treatment Tanks		Title:		Site Location Plan
Job Number:	5034157	Client:	Lowfield Timber Frames Ltd.	Ridge and Partners LLP TEL: 01962 834400 www.ridge.co.uk Rhodium Building Blythe Valley Business Park Solihull Birmingham B90 8AS RiDGE Built Environment Consultancy		
Drawing:	5034157 – Fig 01	Revision:	Rev 01			
Drawn:	KW	Date:	June 2026			
Checked by:	RT-A	Scale:	NTS			



Project:		Lowfield Timber Frames Ltd.		Title:	Superficial Deposits Schematic	
Job Number:	5034157	Client:	Lowfield Timber Framed Ltd.	Ridge and Partners LLP TEL: 01962 834400 www.ridge.co.uk	Rhodium Building Blythe Valley Business Park Solihull Birmingham B90 8AS	
Drawing:	5034157 – Fig02	Revision:	-			
Drawn:	RT-A	Date:	June 2026			
Checked by:	NS	Scale:	NTS			

APPENDIX 1

Report Conditions

Report Conditions

This report is produced solely for the benefit of **Lowfield Timber Frames Ltd.**

and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the Site.

This report is based on a visual Site inspection, study of readily accessible referenced historical records, information supplied by those parties noted in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground contamination is suspected but no physical Site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to detailed activities related to the Site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, not revealed by this research cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ridge and Partners LLP. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the Site and adjacent Sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding Sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off-Site intrusive investigations and monitoring.

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