

# VALIDATION REPORT

Site Address:	Barn at Moles Farm, Ware, SG12 0UG
Report Date:	January 2024
Project No.:	17612
Prepared for:	Harvey Construction
Planning Application	East Herts Council - 3/23/0046/FUL



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## *LIST OF ABBREVIATIONS*

BGS	British Geological Society
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
GL	Ground Level
GW	Groundwater
HESI	Herts & Essex Site Investigations
LAPPC	Local Authority Pollution Prevention and Control
NOS	Not Otherwise Specified (waste material)
NHBC	National House-Building Council
OS	Ordnance Survey
PAH	Poly Aromatic Hydrocarbons
SPZ	Source Protection Zone
TPH	Total Petroleum Hydrocarbons
UFST	Underground Fuel Storage Tanks

**DOCUMENT INFORMATION AND CONTROL SHEET**

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- P.G. Diploma – Geotechnical Engineering, (Inc. Environmental Engineering)
- Master of Science, (Geotechnical Engineering), (Inc. Environmental Engineering)
- SNIFFER modelling course.
- CONSIM Groundwater Assessment Course.
- (30 Years in Geotechnical and Environmental Engineering)
- Asbestos Awareness Course.
- Non-Licensed Work with Asbestos Including>NNLW.
- Site Supervisors Safety Training Scheme, (SSSTS).
- First Aid Course in Construction – 3 Day Course – 3 years.
- CSCS Labourer Card.
- DBS Check, (Advanced).

Document Status and Approval Schedule

<i>Issue No</i>	<i>Status</i>	<i>Date</i>	<i>Prepared by: Rebecca Chamberlain Signature / Date</i>	<i>Technical review by: Chris Gray Signature / Date</i>
1	Final	January 2024		

## *VALIDATION REPORT - PHASE 4*

### *1 Context and Objectives of this report*

#### *1.1 Introduction*

At the request of Moles Farm Ltd, Herts & Essex Site Investigations have been employed to undertake validation works within the site in order to provide evidence and documentation to support the removal of any risk from the site development as a result of site investigation works undertaken and risk assessments completed as a result of these investigations. This has been completed based on the proposed land use of the site is residential land with areas of soft landscaping and private gardens.

### *2 Report Objectives*

The main objectives of the remediation works and validation works undertaken are as follows:

- To anticipate regulatory action and provide necessary data to remove risk.
- To assess the site for Part IIA.
- To ensure development is 'suitable for use' status, (status being residential land use).
- To assess the site in other regulatory contexts.
- To inform acquisition, transfer or sale plans.
- To support funding decisions.
- For valuation purposes.
- For insurance purposes

#### *2.1 Limitations*

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been considered. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

#### *2.2 Planning Condition*

This report has been prepared in conjunction with a planning application developed at East Herts Council under the following application.

Planning Condition Number :- 3/23/0046/FUL

Address : Moles Farm Thundridge Bridleway 020 Thundridge Hertfordshire SG12 0UG.

Reference : Demolition of agricultural buildings. Change of use of land and the erection of 2, 3 bedroomed dwellings with associated landscaping and parking. Moles Farm Thundridge Hertfordshire SG12 0UG.

### ***Condition No. 9***

The development hereby permitted shall not begin until a scheme to deal with contamination of land/ground gas/controlled waters has been submitted to and approved in writing by the local planning authority. The scheme shall include all of the following measures, unless the local planning authority dispenses with any such requirement specifically in writing:

1. A Phase II intrusive investigation report detailing all investigative works and sampling on site, together with the results of the analysis, undertaken in accordance with BS 10175:2011 Investigation of Potentially Contaminated Sites - Code of Practice. The report shall include a detailed quantitative human health and environmental risk assessment.
2. A remediation scheme detailing how the remediation will be undertaken, what methods will be used and what is to be achieved. A clear end point of the remediation shall be stated, and how this will be validated. Any ongoing monitoring shall also be determined.
3. If during the works contamination is encountered which has not previously been identified, then the additional contamination shall be fully assessed in an appropriate remediation scheme which shall be submitted to and approved in writing by the local planning authority.
4. A validation report detailing the proposed remediation works and quality assurance certificates to show that the works have been carried out in full accordance with the approved methodology shall be submitted prior to [first occupation of the development/the development being brought into use]. Details of any post-remedial sampling and analysis to demonstrate that the site has achieved the required clean-up criteria shall be included, together with the necessary documentation detailing what waste materials have been removed from the site.

Reason To minimise and prevent pollution of the land and the water environment and in accordance with national planning policy guidance set out in section 11 of the National Planning Policy Framework, and in order to protect human health and the environment in accordance with policy EQ1 of the adopted East Herts District Plan 2018.

### ***3 Site Location and National Grid Reference***

The site is located within a residential and rural area of Ware, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

**Table 1** *Site Detail*

<i>Site Address:</i>	Moles Farm, Thunderidge Bridleway, Thunderidge, Herts. SG12 0UG
<i>Site assessed under</i>	Site Owners Request - Aid as part of planning
<i>Current use of land:</i>	Farm and Buildings.
<i>Previous use of site, (if known)</i>	As above
<i>Grid Reference</i>	NGR 536076, 216174
<i>Site Area</i>	0.93 Hectares
<i>Local Authority</i>	East Herts Council
<i>Gradient of the site</i>	The surrounding area generally forms a level area.
<i>Proximity of Controlled Waters, (if known)</i>	The nearest surface water feature is recorded as 38 metres to the west of the site which is recorded as a tributary of the River Rib.

## 4 *Review of Previous Reports or Documents Relating to the Site*

### 4.1 *Reports*

The extent of former report which has been undertaken relating to the site is confirmed as follows :-

**Table 2** *Report Details*

<i>Report</i>	<i>Developed by with Reference</i>	<i>Date</i>	<i>Submitted to Local Authority</i>	<i>Approved by Local Authority</i>
<i>Planning Application Number : East Herts Council - 3/23/0046/FUL</i>				
<b>DESK TOP STUDY</b>	CSG / 17612	August 2022	YES	YES
<b>ENVIRONMENTAL REPORT</b>	CSG / 17612	April 2023	YES	YES
<b>REMEDICATION STRATEGY REPORT</b>	CSG / 17612	June 2023	YES	YES
<b>WATCHING BRIEF</b>	N/A	June to December 2023		

In order to gain a full understanding of the site and site history, a review of these documents should be made.



## 4.2 *Review of DTS*

### 4.2.1 *Site Details – Desk Top Study*

- The site is recorded as an existing commercial farm, although at the time of the recent validation sampling, the site had been stripped and reduced in elevation for construction. All historic buildings have been removed.
- The surrounding land uses have been recorded as farmland to the north and east with residential land and farmland to the south and Moles Farmhouse and farmland to the west.
- The site is recorded as Moles Farm from the earliest map record until present day. Various changes to the farm have been recorded over the history of the site.
- No historical planning applications have been deemed a risk at the site area.
- The site records 2 No BGS boreholes surrounding the site which are recorded as 91 metres which are recorded as 18 metres deep and 25 metres deep into the underlying Chalk.
- The reporting identifies 37 No groundwater abstractions surrounding the site within a 2km radius. The closest abstraction is identified as 18 metres to the south of the site abstracting chalk from the Thames ground water for general farming use. This is also a potable water abstraction.
- The site is located within a Source Protection Zone 2.
- The underlying geology is identified as a Principle Aquifer.
- The site lies within an area where less than 1% homes are affected by Radon.
- Landfills extend away from the site from 501 meters to the west.

#### *On Site*

- General commercial storage.
- Above ground storage tanks used for storage of oil.
- Presence of electricity transformer.
- Use of the site as a farm yard and grain storage.
- Demolition waste from previous buildings and sub-based material beneath existing buildings.
- Infilled moat.

#### *Off Site*

- Infilled moat/pond

### *Pathways*

Potential pathways in place within the site area recorded as: -

- Dermal Contact.
- Inhalation of dust and fibres.
- Ingestion of home-grown produce.
- Ingestion of dust and fibres
- Uptake by plants
- Ingestion of contaminated water through water main pipework.
- Inhalation of vapours from soils.
- Inhalation of Land Gases.

- Inhalation of vapours from Groundwater.
- Inhalation Asbestos dust and fibres (from Asbestos within the building)
- Inhalation Asbestos dust and fibres (from asbestos within the soil).

### *Receptors*

Potential receptors in place within the site area recorded as: -

- Human health - future users of the site (residential with private gardens).
- Human health - construction workers.
- Controlled water (surface water).
- Buildings and construction materials (concrete).
- Water supply pipework.

## **4.3**            *Review of Environmental Report*

### **4.3.1**            *Site Investigation Works Completed*

The scope of works completed within the site investigation are recorded in the Site Investigation Reports and can be reviewed within this report. This confirms the following source data :-

#### *Initial Investigation – April 2023*

- 6 No Competitor Rig Windowless Sampler borehole sunk to a maximum depth of between 1.00-3.00 meters - Date of Works –17<sup>th</sup> April 2023.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report date 17<sup>th</sup> April 2023).

#### *Validation Assessment – May 2023*

- 6 No Hand dug excavations for chemical sampling sunk to a depth of 1.00 metres - Date of Works –May 2022.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (February 2022)

**Table 3** *Pollutant Risk*

Original risk	Sampling		Testing Criteria	Human health risk Pass/Fail	Comments
	Location	Depth (m)			
WS1, WS2 & WS3	VAL1	0.20	Lead and PAH's	X	FAIL –PAH'S
	VAL2	0.20		✓	PASS
	VAL3	0.15		X	FAIL –PAH'S
	VAL4	0.20		✓	PASS
	VAL5	0.10		✓	PASS
	VAL6	0.15		✓	PASS

**4.3.2 Geology**

Based on the investigation completed by HESI the site has been reviewed and we can confirm that the geology within the site is as follows :-

**Table 4** *Geological Profile*

Stratum	Description	Depth, Range	Thickness, Range
<b>Made Ground</b>	Grass over loose dark brown silty, sandy topsoil FILL with occasional flint gravel.	0.25m	0.25m
<b>LOWESTOFT FORMATION</b>	Firm to stiff light brown, orange, grey moderately silty, slightly sandy CLAY with occasional chalk fragments and flint gravel.	3.00m+	2.75m+
<b>Ground Water:</b>	No groundwater has been identified within the scope of the site works. This is based on short term observations. Should groundwater monitoring be required, (which may impact on the development of the site), standpipes and inspections should be requested and completed. All current groundwater comments are based on limited information to date.		

**4.3.3 Soil Contamination Risks**

Risk based on assessments of the site with a proposed use of residential land use with plant uptake confirms that risk is in place as follows :-

**Table 5** *Soil Contamination Risks*

<i>Risk Factor</i>	<i>Risks in place</i>	<i>Remediation</i>
<i>Targeted Risks</i>	<i>Lead &amp; PAH's ISOLATED TO WS1, WS2, WS3, VAL1 &amp; VAL3</i>	Remediation action required.
<i>Spatial Risks</i>	NONE	

**4.3.4** *Ground and Surface Water Risks*

No risk is identified in place.

**4.3.5** *Land Gas Risks*

Land Gas assessments have been completed on the adjacent parcel of land as noted below.

**Table 6** *Land Gas Risk Assessment - Response Zone*

<i>Feature</i>	<i>Targeted Response Zone</i>	<i>Location to Target</i>	<i>Vapour or Gas risk</i>
Made ground and Infilled ground	Made Ground	Site Wide	Land Gases - CO <sub>2</sub> , CH <sub>4</sub> .
Landfill Site, (501m, W)	Made Ground	Site Wide	Land Gases - CO <sub>2</sub> , CH <sub>4</sub> .

Table 7 Gas Monitoring Data Sheet

Date	Time	BH ID	Flow Rate				Concentration, (CH <sub>4</sub> )			Concentration, (CO <sub>2</sub> )				Concentration, (O <sub>2</sub> )				Q <sub>hg</sub> , CH <sub>4</sub>	Q <sub>hg</sub> , CO <sub>2</sub>	Stratum Screened	Flooded Response Zone	Barometric Pressure	Other Gases	Weather
			Peak	Steady			Peak	Steady			Peak	Steady			Peak	Steady								
				15 secs	30 Secs	45 Secs		15 Secs	30 Secs	15 secs		15 secs	30 Secs	45 Secs		15 secs	30 Secs	45 Secs	%	%	%			
L/h	L/h	L/h	L/h	%			%			%														
22/2/22	7:30	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	20.0	20.0	20.0	20.0	0.0	0.0	CLAY	N	1010	No VOC's	Slightly Overcast
1/3/22	7:30	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	19.9	19.9	19.9	0.0	0.0	CLAY	N	998	No VOC's	Slightly Overcast
8/3/22	7:30	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.0	20.0	20.0	19.9	19.9	0.0	0.0	CLAY	N	999	No VOC's	Slightly Overcast
15/3/22	8:00	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	20.1	20.1	20.0	20.0	0.0	0.0	CLAY	N	1001	No VOC's	Raining
22/3/22	8:00	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	20.0	0.0	0.0	CLAY	N	1026	No VOC's	Sunny
29/3/22	8:30	WS7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	19.9	19.9	19.9	0.0	0.0	CLAY	N	1009	No VOC's	Sunny Frosty

A) Calculated using peak concentration and steady state flow (see 6.3.4). Works and table completed in accordance with BS 8485 : 2015, (Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings).  
 Table prepared after Table F2, (Gas Monitoring Data).

Considering the results of the gas testing no elevated levels were recorded in place within the site and no flow rates were recorded within the site and as such, the site and surrounding area is not degrading at a fast rate.

With this in mind, we can confirm the following calculations can be made :-

$$Q_{hg} = q \left( \frac{Chg}{100} \right)$$

$q$  = is the measured flow rate, (in litres per hour) of combined gases from the monitoring standpipe

$Chg$  = is the measured hazardous gas concentration, (in percentage volume / volume)

Therefore :-

$$Q_{hg} = 0.0 \left( \frac{0.3}{100} \right) = 0.0$$

As such, the Hazardous Gas Flow Rate has been calculated as 0.00 and we would therefore suggest gas generation within the site area is minimal and would return a Characteristic Situation in line with CIRIA C665, CLR11 and BS8485:2015 of CS = 1 and no mitigation measures required.

#### 4.3.6 Vapour Risks

Considering the potential for vapour risk to be in place from various source as noted below, the following risk are in place.

**Table 8 Vapour Risk Assessment - Response Zone**

Feature	Targeted Response Zone	Location to Target	Vapour or Gas risk
Made ground / farm	Made ground	Site wide	TPH's

Chemical testing has been completed and no significantly elevated level of these vaporous contamination have been recorded in place also when logging and sub-sampling a visual and olfactoral assessment of the soils have been completed, and no contamination that promotes a vapour risk has been encountered within the assessment completed to date.

#### 4.3.7 Water Main Pipework

An assessment of risk in relation to water main pipework has been considered within the scope of the works and considering the pollution measured at the site. Based on a comparison of the WRAS Data and UKWIR, (Guidance for the selection of water supply pipework on brownfield sites), it can be seen that marginal levels of contamination, (In the form of PAH's), have been identified and risk is directly in place to water main pipework. This would suggest that any new water main pipework should be installed using Protecta-Line pipework.

- New water main pipework should be laid in Protecta-Line pipework system.
- Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

#### **4.3.8 Building Risks**

Considering the risk from Sulphates to concrete we can confirm that the chemical testing completed confirms the sulphate levels in the ground which can identify risk to concrete and whether special sulphate resisting cement may be required.

Based on the information gained, we can confirm that a classification of DS1-AC1s should be adopted for the site. Assessment of the deeper soil in contact with any concrete should also be completed.

#### **4.4 General Source Risk Conclusions**

The site has identified Made Ground and potentially contaminated ground.

These risks form the following layers and associated contamination: -

##### **HUMAN HEALTH**

FILL: - Isolated contamination from Lead to the areas of WS1 –Remediation works will be required to this area.

FILL: - Isolated contamination from PAH to the areas of WS1, WS2 AND WS3 and VAL 1 AND VAL 3 ONLY – Remediation works will be required to this area.

Based on the above, remedial measures will likely be required areas where pathways to receptors are in place.

##### **WORKFORCE**

The above human health risk is in place within the site area, will promote a low risk on a short-term bases to any workforce within the areas. Appropriate PPE / RPE should be worn and the soil contamination risk should be noted within any site inductions.

##### **GROUNDWATER RISKS**

Due to the presence of a significant depth of clay across the site, risks to groundwater are generally considered low.

##### **VAPOUR RISKS**

Chemical testing of the soils show that low risks are in place. Vapour risk is not in place.

##### **GAS RISKS**

Land gas risk has been assessed and removed risk.

##### **CONSTRUCTION MATERIALS**

Water main pipework has been considered and risk has been identified directly to any water main pipework developed at the site. Water main pipework can be laid in a protective pipework system.

Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

## 5 Risk Assessment Based on Source Risk

Considering the presence of contamination which has been identified above, we confirm the following outlines the assessment of the site completed and way forward for the site.

**Table 9 Risk Assessment A**

Source	Receptors	Pathway	Mitigation / Discussion		
<b>Lead &amp; PAH's</b>	Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.	Direct contact	Risk is likely to be isolated to front section of the site. WS1, WS2, WS3, VAL1, VAL3		
		Ingestion dust and soil			
		Ingestion of soils attached to vegetation			
		Inhalation of vapours, (gas and organic)		No vapour risk from Lead & PAH contamination identified	
		Ingestion of contaminated water through water main pipework		No risk in place from Lead & PAH contamination identified	
		Inhalation of vapours through contaminated ground waters		No vapour risk from Lead & PAH.	
		Direct contact with contaminated ground waters		Groundwater risk has been identified as low based on the information gained.	
		Surface Water.			Lateral migration of shallow groundwater to a target receptor.
		Ground Water. Abstraction Well.			Migration through fissures / cracks which may migrate to a groundwater receptor.
		Plants. Vegetation.		Plant uptake. Direct contact.	By comparison with BS3882 : 2016, risk is low.
Buildings. Construction Materials.	Direct contact with contaminated soils;	Lead & PAH's pose a low risk to the built environment.			
	Direct contact with contaminated groundwater	Groundwater risk has been identified as low based on the information gained.			



## 5.1 Collection of Additional Data

No additional works are required, the site investigation works within the site are sufficient to classify the soil and groundwater risk in place within the site and enable a remediation plan to be written.

## 6 Review of Remediation Strategy

### 6.1 Remediation Proposals

#### 6.1.1 Human Health Risk

##### Targeted Risks

- Risk from Lead & PAH's across the north of the site area which is defined as the front section of the site through the area defined as the main houses construction area and patio area. As such, the remediation proposals for the site will be undertaken where soft landscaping is identified within this 'zone'

##### Spatial Risks

- None

Figure 1 Remediation Plan



The strategy adopted for the remediation of the site are defined as follows :-

***Remediation Cell 1 –Lead & PAH's –Isolated to WS1, WS2 & WS3 and VAL1 & VAL3***

- Considering the nature of the contamination identified, (*i.e. Lead & PAH's*), we would suggest that the depth of capping should form a conventional capping system with a geotextile layer laid over the top as defined within ***Scenario 1 or 2***, (as shown section 6, at the end of this report).
- A review of the reduced dig area of the remediation cells should be made upon completion of the removal of at least 0.60 meters of the soils and sampling completed across these remediation cells to confirm the that the levels of contamination from Lead & PAH's are not above a commercial level, (i.e. not significant). As such, the test criteria for the reduced dig and sides of the excavation of the remediation cell will form Lead & PAH's in this Remediation Cell.
- Validation testing has already been completed to delineate the sides of the excavation and it is recorded from the works undertaken that the depth of the contaminated stratum does not extend very deep, (identified to depths of between 0.20-0.30 meters below the site level based on the reworked level of the site when sampling was completed).
- Should deeper areas of made ground be identified through the remediation works, (this is not anticipated but has a potential to occur), the remediation cell should be taken to a maximum depth of 0.60 metres and then a membrane placed within the cell to act as a deter to dig layer.
- A record of the soils to remain in place at the base of the remediation cell should be kept, through site notes and photos, for validation.
- A Materials Management Plan, (MMP), will be required in order to provide adequate confidence that cross contamination from both the demolition process of existing site features and structures and also the potential for soils to become cross contaminated to other areas of the site which may increase costs for site remediation does not occur. The groundworks contractor / remediation contractor will be required to provide adequate reporting that cross contamination has been fully prevented and validation that the proposals have worked.

***6.2 Remediation Cell 2 –WATER MAIN PIPEWORK***

- Construction materials have been considered and risk has been identified directly to any water main pipework developed at the site.
- An assessment of risk in relation to water main pipework has been considered within the scope of the works and considering the pollution measured at the site. Based on a comparison of the WRAS Data and UKWIR, (Guidance for the selection of water supply pipework on brownfield sites), it can be seen that elevated levels of contamination have been identified and risk IS IN PLACE to water main pipework. This would suggest that any new water main pipework SHOULD BE INSTALLED USING BARRIER PIPEWORK.
- Considering the risk to the workforce used in the construction and possible future maintenance of water main pipework, no risk is in place. To confirm :-
  - o Water main pipework should be laid in a BARRIER PIPEWORK system.

- o Any water main pipework should be laid in clean corridors in order to prevent future risk to workforce used in the maintenance and repair of any water main system.

### **General**

Detailed notes will be required through the development to confirm the extent of options above and where contamination extends to depth and where full contamination has been removed and different scenarios as recorded. This should be documented on detailed plans by the onsite contractor for use in a verification plan.

Validation of these remediation cells is required see section 4.1.

The remediation of the area could either be undertaken :-

- At the start of the development so that all contamination is removed from the site prior to any other ground works being undertaken. This is sometimes completed at the time of the demolition and clearance of the feature currently within the site area.

Or

- At the end of the development when all the areas of the proposed gardens and communal landscaping within this remediation cell will need to be remediated as above. This scenario is likely to incur cross contamination and as such, is not recommended.

A method statement for the movement of soils around the site for off site disposal must be developed and submitted to ourselves for approval for the movement and off site disposal of the remediation cells at the site.

***It should be noted that a significant cause of cross contamination forms the mixing of site based remediation cells with clean areas of soils, particularly in the case of Asbestos which can spread to clean areas. As such, a defined Materials Movement Plan should be developed and followed to avoid cross contamination risks. This should be designed in accordance with Definition of Waste – Code of Practice.***

#### **6.1.2 Semi Permanent Landscaping, (Patlo Areas)**

Treat as Soft Landscaping if in defined remediation cells.

#### **6.1.3 Permanent Hard Landscaping, (Main Driveway)**

Permanent hard landscaping could form the main driveway and parking area which is laid to tarmac and cannot be removed by the residents.

The hard standing will cap off any contamination and removed the pathway, no additional works are required.

#### **6.1.4 Construction Features**

Based on the information shown, we can confirm that the risk from explosive land gases is low based on the information identified. The justification for low ground gas risk has been identified and reviewed in Section 2.6.5.

Considering the risk from Sulphates to concrete we can confirm that the chemical testing completed confirms the sulphate levels in the ground which can identify risk to concrete and whether special sulphate resisting cement may be required.

Based on the information gained, concrete has been identified as a risk and as such, any cement used within the development of the site should be a DS1-AC1s classification sulphate resisting cement.

### 6.1.5 Workforce

- All Site Staff and visitors to the site should be made aware of the contamination risk within the site area (Lead & PAH's).
- Appropriate PPE should always be worn.
- Washing facilities should be made available for washing hands prior to consumption of any food or water within the site area.

## 7 Validation

### 7.1 Validation Works Completed

Via the remediation report Herts & Essex Site investigations have informed the client of the validation requirements for the validation works, based on this the client has invited HESI to visit the site at strategic point of the development and have provided the validation data for completion of the report these details and information are as follows.

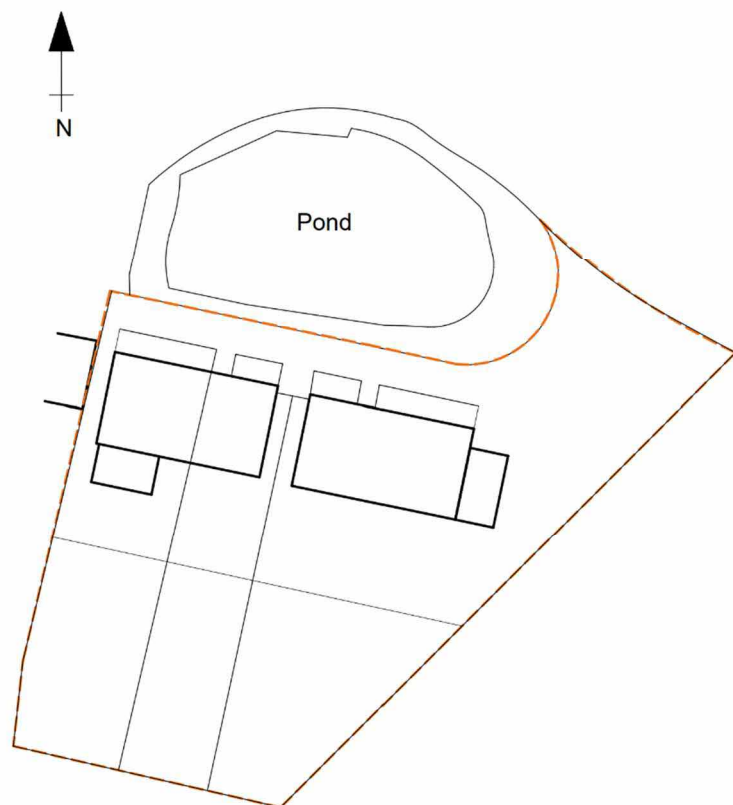
### 7.2 Amendments to the Proposed Remediation Plan

The layout of the site has been altered which will change the Source –Pathway –Receptor analysis for the project. Where areas of the site were previously soft landscaping, they are now hard landscaping which will remove specific capping or remediation processes through the placement of hard cover which were previously identified as soft landscaping. A revised layout plan is shown below.

**OLD LAYOUT**



**NEW PROPOSED LAYOUT**



### 7.3 Reduced Dig

Post completion of the site strip and preparation of the site, further excavations site wide was completed across the site to reduce the ground level to the top of the foundations which was identified as at least 0.60 meters below the finished site level. The top of foundations was shown in the photographs identified below and confirm the depth of reduced dig.

*Print 1*



*Print 2*



*Print 3*



*Print 4*



Based on the information obtained, we can confirm that no obvious visual and olfactoral risk is identified in place at the reduced dig excavation across the site has likely removed risk in full. Nonetheless, the reduced dig is in excess of 0.60 meters below the finished site level and as such, provided the soils to make up the site are fit for residential land use, risk is removed.

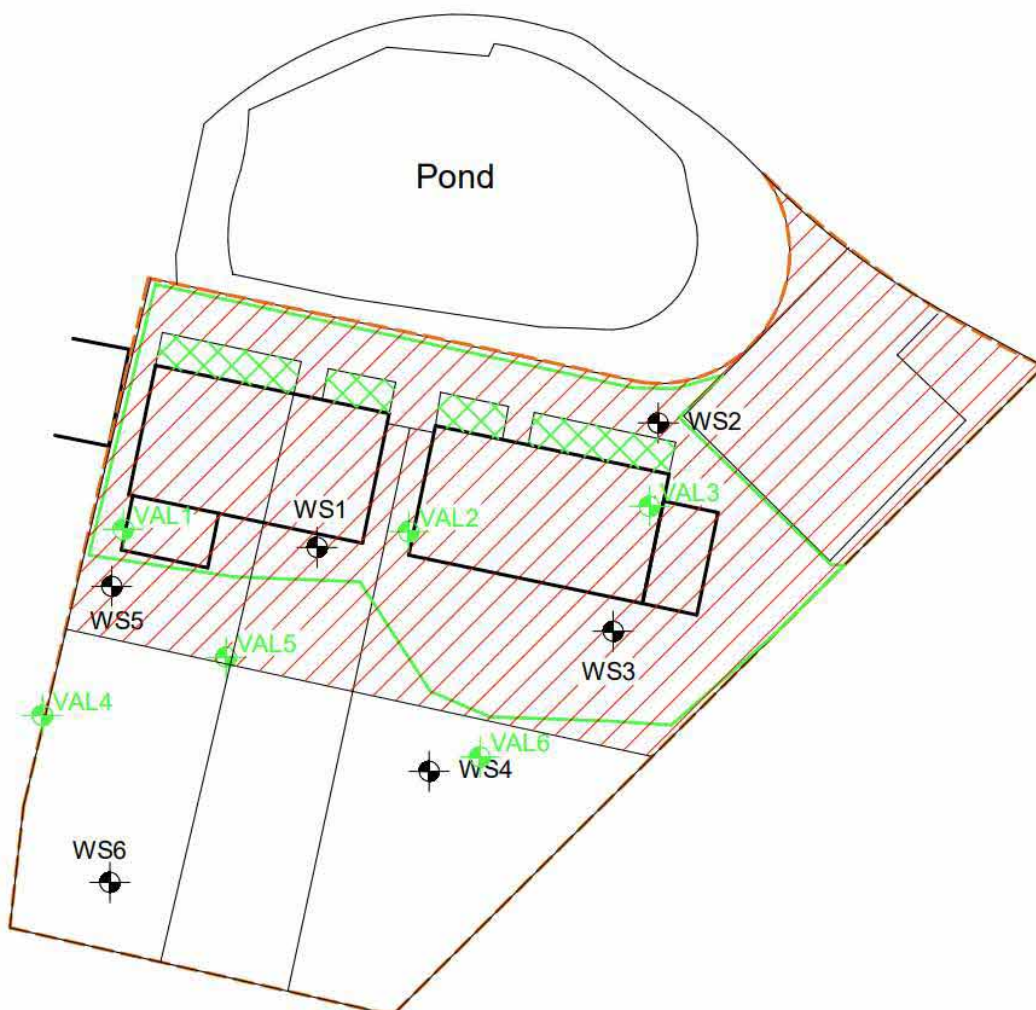
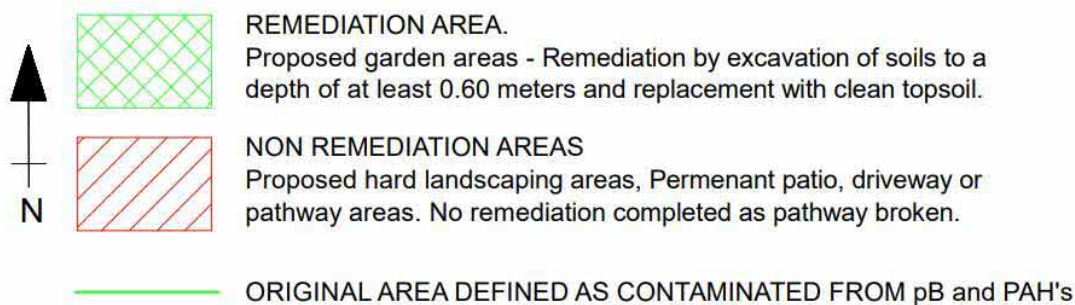
## Soft Landscaping Areas

### 7.3.1 Soft Landscaping Area - Backfill

At the time of the site strip which was completed to the top of the foundation level to remove all identified contamination.

Construction of the site has then taken place to develop the main site including buildings and services. Backfill has ultimately taken place to bespoke small areas of garden which effectively placed topsoil in place to form a suitable depth growth medium for both grass and shrub planting. This ultimately formed 600mm in shrub planting areas to the front of the site.

The remediation area and subsequent remediation processes implemented is as follows :-



7.3.2 *Site Reconnaissance – Photos*

*Print 5*



*Print 6*



*Print 7*



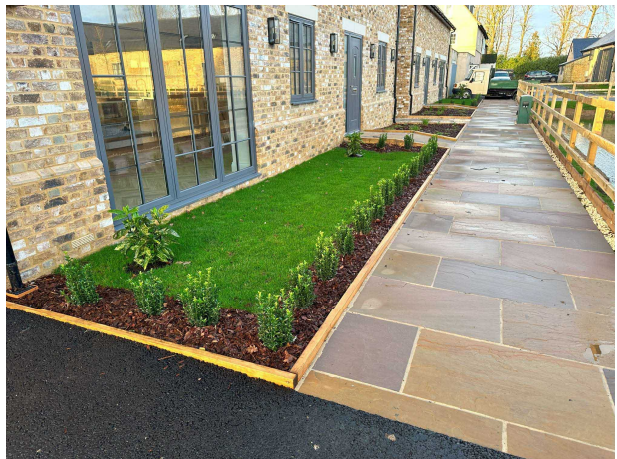
*Print 8*



*Print 9*



*Print 10*



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*Print 11**Print 12*

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### **7.5**      *Excavated Soils*

Any excavated soils were disposed off-site to a suitable landfill via an external haulier. Muck Away certificates have been included within this report.

### **7.6**      *Topsoil Importing*

Topsoil has been brought onto the site and placed in areas of soft landscaping. HESI were invited to visit site and collect in-situ samples of the topsoil. Two samples were collected from the site.

The result of this testing is recorded within the appendix of this report.

By examination of the results obtained from the analytical chemist with the criteria set out in the remediation report, it can be confirmed that the topsoil samples fell below the allowable level for residential or sensitive land uses and as such, the material is suitable for use in the site.

### **7.7**      *Semi Permanent Landscaping, (Patio Areas)*

Where these are in place, they have been the reduced as part of the remediation cell and have been backfilled with hardcore as a base of the patios and pathways. The site strip removed all contamination from the site.

### **7.8**      *Water Main Pipework*

All contaminated soil has been removed from the site as part of remediation as such no risk to the water mains is recorded within the site, any new water mains have been installed within conventional pipework, within clean backfill in the trenches.

### **7.9**      *Below Buildings*

#### **7.9.1**      *Vapour Risk*

No risk in place

#### **7.9.2**      *Land Gas*

No risk in place



### **7.10**      *Permanent Hard Landscaping, (Main Driveway)*

These will form permanent features that cannot be removed by the site occupants. Although the majority of these areas were excavated and back filled with hardcore. The hardcover will remove the pathway for these to impact on any receptors.

### **7.11**      *Workforce*

Throughout the development a site induction was completed for anyone coming onto the site and where required the visitors and workers were informed of the potential risks from the soil in place within the site area.

Appropriate PPE was worn by all personnel on site with hand washing facilities were made available.

### **7.12**      *Groundwater Risk*

Groundwater risk has been identified as low based on the assessments completed.

## **8**            *Conclusions*

This report forms a validation report for the completion of the site area and includes validation that the soft landscaped areas within the remediation zone, (and likely the wider area) have undergone removal of soils and replacement with clean topsoil specifically acceptable to a residential land use standard with home grown produce.

The remediation formed the full excavation of all contamination from the site.

The excavated soils were removed from the site to a landfill through a licensed haulier. Photos of the remediation cells have then been recovered and are recorded within this report to provide lines of evidence that all contamination has been removed from the site. Clean topsoil has been imported to the site area and therefore no further risk to human health is in place.

It is not proposed to undertake any long term monitoring or maintenance programmes within the site.

**CERTIFICATE OF COMPLETION**

**Development:** Barn at Moles Farm, Ware, SG12 0UG

**Planning Application Ref.:** 3/23/0046/FUL

**Undertaken Between the Dates of:** August 2022 and January 2024

**PHASE 1 - Desk Top Study**

*Confirmation that an acceptable Phase I Assessment has been undertaken for the above development, detailed in the Phase I report(s):*

<b>Title:</b> Desk Top Study	<b>Ref:</b> CSG / 17612	<b>Author:</b> HESI - C.S.Gray, M.Sc	<b>Date:</b> August 2022
---------------------------------	----------------------------	---	-----------------------------

**PHASE 2 - Intrusive Investigation**

*Confirmation that an acceptable Phase II Assessment has been undertaken for the above development, detailed in the Phase II report(s):*

<b>Title:</b> Environmental Report	<b>Ref:</b> CSG / 17612	<b>Author:</b> HESI - C.S.Gray, M.Sc	<b>Date:</b> April 2023
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**PHASE 3 - Remediation Proposals**

*Confirmation that acceptable remediation measures to afford protection from identified risks have been proposed for the above development, detailed in the report(s):*

<b>Title:</b> Remediation Report	<b>Ref:</b> CSG / 17612	<b>Author:</b> HESI - C.S.Gray, M.Sc	<b>Date:</b> June 2023
-------------------------------------	----------------------------	--	---------------------------

**PHASE 4 - Implementation of Remediation**

*Confirmation that proposed remedial measures were satisfactorily implemented, as per the agreed report(s), & detailed in the Validation Documentation:*

<b>Title:</b> Validation Report	<b>Ref:</b> CSG / 17612	<b>Author:</b> HESI - C.S.Gray, M.Sc	<b>Date:</b> June 2023 to January 2024
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**IMPORTED TOPSOIL CLARIFICATION**

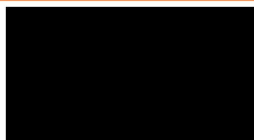
*Confirmation that Topsoil has been imported into the site.*

<b>TESTING COMPLETED</b> Validation Report	<b>Ref:</b> CSG / 17612	<b>Author:</b> HESI - C.S.Gray, M.Sc	<b>Date:</b> January 2024
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**DECLARATION**

**SIGNED**

**CHRIS GRAY, M.Sc.**



**Date:**  
January 2024

**IS THE SITE FIT FOR  
PURPOSE ?**

YES.

# APPENDIX A

# CONCEPTUAL MODEL

Potential Pathways

Human Health

- ① Direct contact with contaminants in soil/dust or water
- ② Inhalation of contaminants through soil/dust/particles
- ③ Dermal Contact
- ④ Ingestion of home grown produce
- ⑤ Ingestion of contaminated water through water main pipework
- ⑥ Inhalation of Vapours From Soils
- ⑦ Inhalation of Vapours from Groundwater
- ⑧ Migration to off site Adjoining Land Owners

Flora

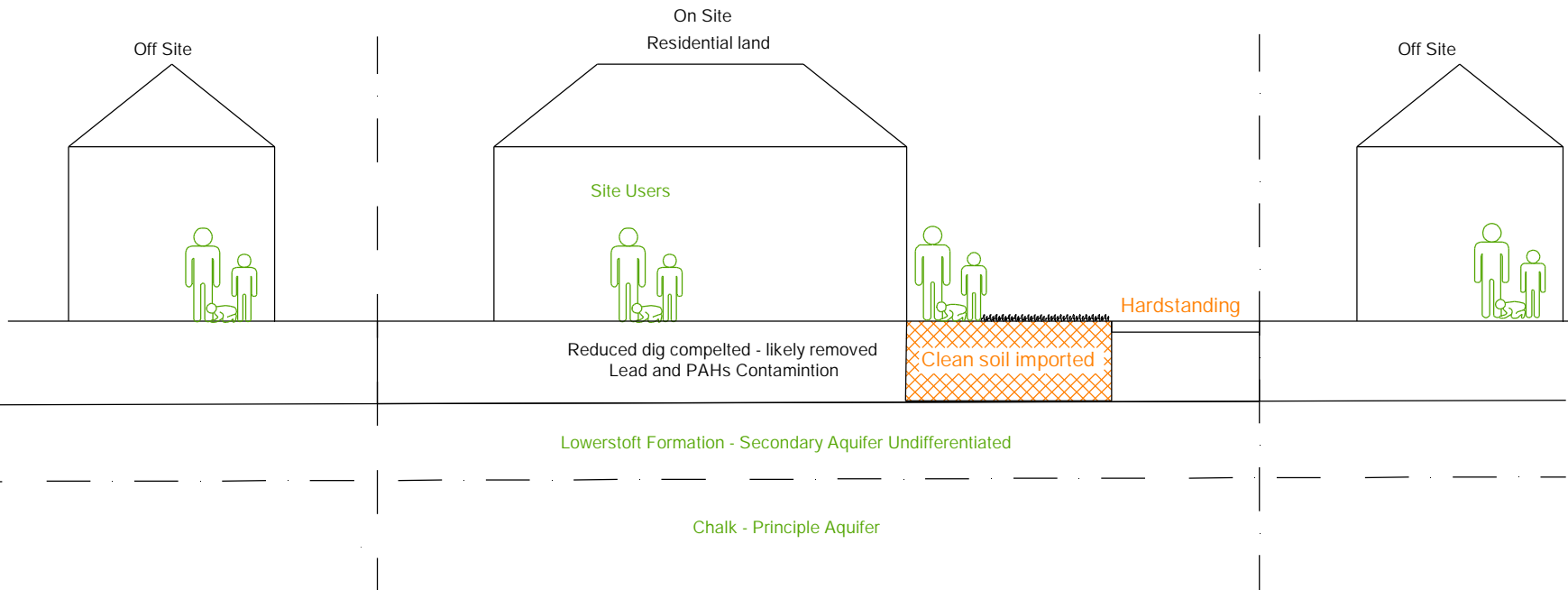
- ⑨ Plant Uptake & Direct Contact with soil
- Controlled Surface Water, Ground Water & Abstraction Well
- ⑩ Leaching, lateral migration of shallow groundwater to a target receptor

Off Site Sources

- (A) Migration of contamination to the site area
- (B) Migration of land gases/ Vapours to the site area
- (C) Migration of contaminated groundwater to the site area

Key

- Purple =Potential pathways applicable to site
- Green =Potential receptors applicable to site
- Red =Potential sources applicable to site
- Blue =Potential pathway/source/receptor
- Orange = Remedial measure put in place to remove either pathway/ source/receptor



Not to Scale  
 Sketch No. : VAL / 17612 / A / 01



**HESI**  
 Herts & Essex Site  
 Investigations

Geotechnical Assessments | Environmental Assessments | Desktop Studies | Contamination Analysis

Unit J8 | Peek Business Park | Woodside | Bishops Stortford | CM23 5RG  
 01920 822233 | www.hesi.co.uk | info@hesi.co.uk




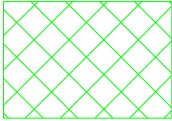


# APPENDIX TWO

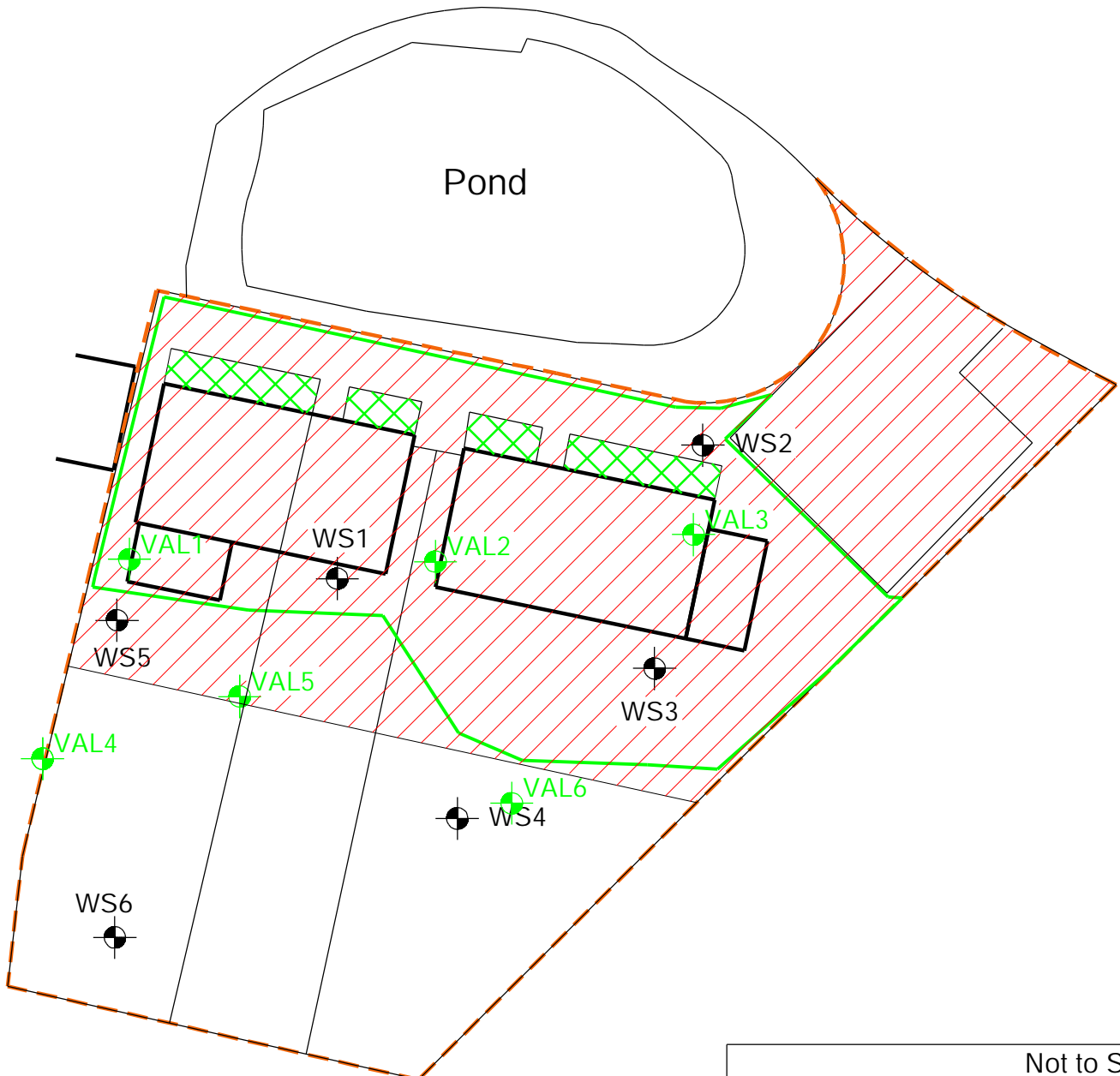
  

# VALIDATION PLAN

## Barn at Moles Farm, Ware, SG12 0UG

### Validation Plan

-   **REMEDIATION AREAS**  
 Proposed garden areas - Remediation by excavation of soils to a depth of at least 0.60 meters and replacement with clean topsoil.
-  **NON REMEDIATION AREAS**  
 Proposed hard landscaping areas, Permanent patio, driveway or pathway areas. No remediation completed as pathway broken.
-  **ORIGINAL AREA DEFINED AS CONTAMINATED FROM LEAD & PAH's**



# APPENDIX THREE

# TOPSOIL TESTING



# Final Report

**Report No.:** 23-42435-1

**Initial Date of Issue:** 08-Jan-2024

## Re-Issue Details:

**Client** Herts & Essex Site Investigations

**Client Address:** Unit J8  
Peek Business Park  
Woodside  
Bishops Stortford  
Hertfordshire  
CM23 5RG

**Contact(s):** Ben McCulloch  
Chris Gray  
Rebecca Chamberlain

**Project** Moles Farm (Barn), Ware, SG12 0UG -  
17612

**Quotation No.:** **Date Received:** 22-Dec-2023

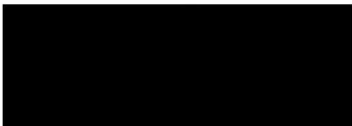
**Order No.:** 17482 **Date Instructed:** 22-Dec-2023

**No. of Samples:** 2

**Turnaround (Wkdays):** 5 **Results Due:** 05-Jan-2024

**Date Approved:** 08-Jan-2024

**Approved By:**



**Details:** Stuart Henderson, Technical Manager



## Results - Soil

Project: Moles Farm (Barn), Ware, SG12 0UG - 17612

Client: Herts & Essex Site Investigations		Chemtest Job No.:		23-42435	23-42435		
Quotation No.:		Chemtest Sample ID.:		1749572	1749573		
		Sample Location:		TS1	TS2		
		Sample Type:		SOIL	SOIL		
		Date Sampled:		20-Dec-2023	20-Dec-2023		
		Asbestos Lab:		NEW-ASB	NEW-ASB		
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
ACM Type		U	2192		N/A	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	14	16
Stones and Removed Materials		N	2030	%	0.020	< 0.020	< 0.020
Soil Colour		N	2040		N/A	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones
Soil Texture		N	2040		N/A	Clay	Clay
pH at 20C		M	2010		4.0	8.7	8.5
Electrical Conductivity (2:1)		N	2020	µS/cm	1.0	220	198
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	1.1	1.0
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.022	0.027
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50
Sulphate (Total)		U	2430	%	0.010	0.28	0.21
Arsenic		M	2455	mg/kg	0.5	27	16
Cadmium		M	2455	mg/kg	0.10	0.78	0.55
Copper		M	2455	mg/kg	0.50	88	78
Mercury		M	2455	mg/kg	0.05	0.43	0.11
Nickel		M	2455	mg/kg	0.50	54	47
Lead		M	2455	mg/kg	0.50	189	145
Zinc		M	2455	mg/kg	0.50	125	90
Chromium (Trivalent)		N	2490	mg/kg	1.0	84	77
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C12-C16	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0	< 1.0
Aliphatic EPH >C16-C21	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0
Aliphatic EPH >C21-C35	EH_2D_AL_#1	M	2690	mg/kg	3.00	< 3.0	< 3.0
Aliphatic EPH >C35-C40	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10
Total Aliphatic EPH >C10-C35	EH_2D_AL_#1	M	2690	mg/kg	5.00	< 5.0	< 5.0
Total Aliphatic EPH >C10-C40	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05

# Results - Soil

Project: Moles Farm (Barn), Ware, SG12 OUG - 17612

Client: Herts & Essex Site Investigations		Chemtest Job No.:		23-42435	23-42435		
Quotation No.:		Chemtest Sample ID.:		1749572	1749573		
		Sample Location:		TS1	TS2		
		Sample Type:		SOIL	SOIL		
		Date Sampled:		20-Dec-2023	20-Dec-2023		
		Asbestos Lab:		NEW-ASB	NEW-ASB		
Determinand	HWOL Code	Accred.	SOP	Units	LOD		
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0
Aromatic EPH >C12-C16	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0
Aromatic EPH >C16-C21	EH_2D_AR_#1	U	2690	mg/kg	2.00	< 2.0	< 2.0
Aromatic EPH >C21-C35	EH_2D_AR_#1	U	2690	mg/kg	2.00	< 2.0	< 2.0
Aromatic EPH >C35-C40	EH_2D_AR_#1	N	2690	mg/kg	1.00	< 1.0	< 1.0
Total Aromatic EPH >C10-C35	EH_2D_AR_#1	U	2690	mg/kg	5.00	< 5.0	< 5.0
Total Aromatic EPH >C10-C40	EH_2D_AR_#1	N	2690	mg/kg	10.00	< 10	< 10
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50
Total EPH >C10-C35	EH_2D_Total_#1	U	2690	mg/kg	10.00	< 10	< 10
Total EPH >C10-C40	EH_2D_Total_#1	N	2690	mg/kg	10.00	< 10	< 10
Organic Matter		M	2625	%	0.40	2.5	3.0
Naphthalene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Chrysene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's		M	2700	mg/kg	2.0	< 2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10

## Test Methods

SOP	Title	Parameters Included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C40 Aromatics: >C10-C11, >C12-C16, >C16-C21, >C21-C35, >C35-C40	Acetone/Heptane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2780	VPH A/A Split	Aliphatics: >C5-C6, >C6-C7,>C7-C8,>C8-C10 Aromatics: >C5-C7,>C7-C8,>C8-C10	Water extraction / Headspace GCxGC FID detection
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

## Report Information

### **Key**

---

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### **Sample Deviation Codes**

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A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

# APPENDIX FOUR

## MUCK AWAY TICKETS

# 4947

DELIVERY / WASTE TRANSFER / DUTY OF CARE NOTE



Cheshunt Park Farm  
Park Lane Paradise  
EN7 6PZ  
Tel: 01992 635454  
Email: info@hnmuckers.com

8 Wheeler Aggregates, Grab Hire, Ready Mix Concrete,  
Tipper Hire & Plant Hire

REGISTERED WASTE  
CARRIER NO. CBDU5592

SECTION A

Order No. .... Size ..... Date .....  
CUSTOMER NAME .....  
ADDRESS .....  
.....

SECTION B - Description Of Waste

- Inert Muck / Soil 17 05 04
- Concrete 17 01 01
- Concrete / Bricks 17 01 07
- Wood 17 02 01
- Mixed Metal 17 04 07
- Mixed Construction 17 09 04
- Other .....

SECTION C - Place Of Transfer

NAME .....  
ADDRESS .....  
.....  
The Ridgeway, Enfield EN2

Del. Date 30-11-23 Del. Time  
Driver James Vehicle KR23 YKX

PLEASE NOTE: CUSTOMERS ORDERING VEHICLES OFF THE PUBLIC HIGHWAY DO SO ENTIRELY AT THEIR OWN RISK/RESPONSIBILITY.  
We cannot accept liability for any damage caused by our vehicles delivering or disposing of the public highway. The customer is responsible for any necessary lights required during the hours of darkness.  
Customers must satisfy themselves before using any material that it is suitable for the purpose, as the company will not be responsible for any loss incurred by the use of unsuitable material. I understand and accept the conditions printed herewith and overleaf. I understand by signing I accept the terms and conditions set out on www.hnmuckers.com  
I confirm that the waste/material and the above details are correct.

SIGNATURE: ..... NAME .....  
(in capitals)

SECTION 1 HH CONCRETE

MIX DESCRIPTION	ADMIX/ FIBRES	AGG SIZE	CEMENT TYPE	M3
ADDITIONAL WATER REQUESTED BY CUSTOMER				
TIME ARRIVED ON SITE START OF BATCHING				
TIME FINISHED ON SITE				
WAITING TIME MINUTES @ £				
SIGNED ON BEHALF OF HH CONCRETE				

CAUTION FOR EVERYONE HANDLING CEMENTITIOUS MATERIAL

Fresh cementitious material can cause serious burns to skin and eyes as well as skin disease and dermatitis. Do NOT swallow. Keep out of reach of children. Immediately wash off any fresh cementitious material from skin and thoroughly wash out of any affected eye. If swallowed do not induce vomiting but seek immediate medical advice. Wear protective clothing (goggles, gloves, impervious boots, trousers and long sleeved clothing). Immediately remove any clothing or other items saturated with cementitious material and wash thoroughly before reuse. Seek medical attention if symptoms persist or in case of doubt.

PLEASE NOTE: CUSTOMERS ORDERING VEHICLES OFF THE PUBLIC HIGHWAY DO SO ENTIRELY AT THEIR OWN RISK/RESPONSIBILITY.  
We cannot accept liability for any damage caused by our vehicles delivering or disposing of the public highway. The customer is responsible for any necessary lights required during the hours of darkness.  
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I confirm that the waste/material and the above details are correct.

CUSTOMER  
SIGNATURE: ..... NAME .....  
(in capitals)

# APPENDIX FIVE

# SIGNED STATEMENTS



TEL 01992 631297  
MOB 07703 119744  
jharveyconstruction@hotmail.co.uk

**(Cheshunt) Ltd**

Ivy Lodge  
Park Lane Paradise  
Cheshunt  
Hertfordshire  
EN7 6PZ

VAT NO: 298 6174 46.

UTR NO. 2919512126

11<sup>th</sup> January 2024

To Chris Gray

I Jack Harvey, Director of Harvey Construction (Cheshunt) Ltd can confirm that no contamination was identified outside that which the original investigation works depicted at Moles Farm, Ware, SG12 0UG.

Kind Regards  
Jack Harvey

Payable to: Harvey Construction (Cheshunt) Ltd  
Sort code: 09-01-29  
Account number: 25992786