Castledine Environmental

LAND CONTAMINATION SURVEYS

Phase 3 Remediation Strategy and Verification Plan

for

The Conversion of Barn into 4 No. Small Dwellinghouses

(Use Class C3)

on the site of

White Towers, Wood End, Bluntisham, Huntingdon

PE28 3LE

Date: May 2025

Status:	Final Report
Reference:	3969D P3 Redwood - Bluntisham
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Tel: 01509 880399 Email: info@castledineenvironmental.co.uk

4 Wymeswold Road, Hoton, Loughborough, Leicestershire, LE12 5SN

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1.0 QUALITY ASSURANCE

Castledine Environmental confirm that all reasonable efforts have been made to ensure that the information outlined within this report is accurate.

Castledine Environmental would further confirm that due care, attention and technical skill were used in the creation of this report.

For and on behalf of Castledine Environmental.

Kevin Castledine

(Director)

2.0 LIMITATIONS

The conclusions and recommendations made in this report are limited to those based on the findings of the investigation. Where comments are made based on information obtained from third parties, Castledine Environmental assumes that all third-party information is true and correct. No independent action has been undertaken to validate the findings of third parties. The assessments and interpretation have been made in line with legislation and guidelines in force at the time of writing, representing best practice at the time.

This survey has not included asbestos within existing structures, invasive plant species, geotechnical considerations or any elements unconnected with potential ground contamination at the site. If required, such surveys should be undertaken by suitably accredited organisations.

There may be other conditions prevailing at the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation.

3.0 INTRODUCTION

Castledine Environmental have been appointed by Mr. D. Bridgens to undertake a Phase 3 remediation Strategy and Verification Plan on a site at White Towers, Wood End, Bluntisham, Huntingdon PE28 3LE.

4.0 SCOPE

Castledine Environmental have prepared this report for the sole use and reliance of Mr. D. Bridgens and his appointees for the purpose of ensuring compliance with:

- Paragraph(s) 174, 179, 183 & 184 of the National Planning Policy Framework 2021
- part C1 of the building regulations
- Support of a Planning Application No: 24/00535/PMBPA

This report may not be used or relied upon by any unauthorised third party, or for any other proposed use than that specified above, without the explicit written agreement of Castledine Environmental.

The report consists of a Remediation Strategy and Verification Plan in accordance with

- BS10175:2011+A2:2017, Investigation of potentially contaminated sites. Code of practice
- BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- CLR11 “Model Procedures for the Management of Land Contamination”.
- LCRM “Land Contamination Risk Management”.

The objectives of the report are:-

- Report the existing information relating to the soil contamination and the ground gas regime within the area of the site.

- Set out the remediation measures and validation processes to be followed on site to ensure the site development does not pose a risk to human health.

5.0 SITE DESCRIPTION

The site is located in Bluntisham, Huntingdon at National Grid Reference: 536224,275090 and is approximately 0.05ha in area.

The site is rectangular in shape and is orientated north to south. The site is located in predominantly rural area, being located outside the north western extent of the village of Bluntisham. The site is then directly bounded by field / orchard to the north, north west and west, an associated dwelling with Wood End (roadside) beyond to the south and residential areas / the village of Bluntisham to the south east and east of site.

The site interior comprises a former agricultural barn and limited exterior areas. Access to site was provided via a concreted driveway leading via the western face of an associated, offsite dwelling (located directly south of site), which then terminates to the front (south) of the onsite barn, at a concreted forecourt area. The building itself was seen to be constructed of brick with concrete structuring, concrete flooring (seen to be clean, intact and well-maintained with no significant evidence of hydrocarbon presence or release – visually or olfactorily) and PACM cladding and roofing. The interior of the barn was seen to be largely empty of storage, beyond contemporary storage for the ongoing redevelopment of the adjacent structure (i.e. piping, tools, materials, window frames, timbers, concrete bags and other, miscellaneous construction materials). The areas around the structure, comprising the exterior areas on site, then comprise the concreted forecourt to the south and grassed areas to the east, north and west of the structure. An offsite, yet formerly associated workshop building was noted directly west of site, within which similar construction materials storage was noted, similar to that within the onsite barn.

Additionally, whilst on site, a total of 2 No. hand-excavated inspection pits were formed in the grassed area between the offsite workshop to the west and the onsite barn. The ground conditions largely comprised made ground with fragments of brick, concrete and glass atop a sandy Clay. As this is the most likely area of exposed ground which may remain on site (following redevelopment) and, coupled with the area's location between former workshop and onsite structure, two shallow environmental samples were taken from the area.

Photographs of the area can be found as Photo Nos.12, 13 & 14 in Appendix D of the prior report with a summary of the ground conditions and environmental sampling found as Section 7.3 in the prior Phase 1 Report for the site.

6.0 OVERVIEW OF FINDINGS AND RECOMMENDATIONS FROM PREVIOUS REPORTS

The following previous reports have been referred to and should be read in conjunction with this report:

- Phase 1 Land Contamination Risk Assessment with Exploratory Site Investigation for site a site at White Towers, Wood End, Bluntisham, Huntingdon – Produced by Castledine Environmental in November of 2024 and referenced: 3836D

The most pertinent information is summarised in the following sections.

6.1 SUMMARY OF PREVIOUS REPORTING

The previous report for the site found the site to be presently occupied by a former agricultural barn and limited exterior areas comprising concrete hardstanding and grassed areas. Historically, the site remained part of a wider orchard usage from at least circa.1887 through until around circa.1973/76, when the present-day structure was erected. Following this, the site has been in use for storage purposes (including various machines, agricultural usages and materials).

6.2 SUMMARY OF SOIL CONTAMINATION

Whilst on site, a total of 2 No. hand-excavated inspection pits were formed, allowing an assessment of the present ground conditions to be carried out in light of the sites historical legacy and proposed residential usage. Made ground atop clayey deposits was encountered and, whilst no elevated contamination was identified (no exceedances of metals, metalloids, PAH, TPH CWG nor SVOC or asbestos presence identified), the ground conditions were poor (anthropogenic inclusions) and glass shards were also noted within the deposits. Accordingly, remediation of soft-landscaping areas was recommended.

6.3 SUMMARY OF GROUND GAS & VAPOUR HAZARDS

No significant potential sources of hazardous ground gas generation have been identified (historical infilled ponds in the surrounding area either remain persistent until the present-day, or have been redeveloped with structures atop – indicating a lack of deleterious content with the likely infill material being geotechnically stable and suitable, thus reducing the risk) and the site is located in an area where both superficial (Oadby Member) and bedrock geologies (West Walton Formation and Ampthill Clay Formation – undifferentiated) are predominantly low to very low in permeability, this acting to reduce impact from offsite sources.

The site's historical agricultural usage (i.e. barn and storage) is considered a limited source of hydrocarbon presence; however, no significant evidence of hydrocarbon presence or storage has been identified on site, nor has hydrocarbon impacted subbases or concrete flooring been identified. Furthermore, environmental sampling carried out on site (between the most likely source of hydrocarbons – offsite workshop) has shown no elevated hydrocarbon presence. As such, the risks from hazardous vapours are considered to be low.

7.0 CAPPING OF SOFT LANDSCAPING AREAS

Site soils have been identified as unsuitable for the proposed development; as such, the emplacement of a minimum of 600mm of pre-certified clean materials in all areas of soft-landscaping on site is recommended, as such, the following must be adhered to:

- Details of the source and supplier of the soil(s) must be supplied to the relevant local authority.
- Soils must not be contaminated with materials such as plastic, metals, asbestos, glass, tarmac etc;
- For soil from a single source, it will be necessary to take a minimum of two random samples for every 15m^3. For small quantities of soils, a minimum of three samples will be required in total. Where large quantities of soil from a single source are involved, it may be possible to reduce the frequency of sampling – however, this must have been previously agreed with the Local Authority;
- Analysis of these soils samples must take place in independent UKAS (United Kingdom Accreditation Scheme) or MCERTS (Environment Agency Monitoring Certification Scheme) accredited laboratories.
- The analytical test suite must include a minimum of metals, speciated PAH, total TPH and pH. Analysis of additional substances may be required by the local authority depending on the source e.g. a pesticide suite for soils from agricultural sources. Analysis must be recent and clearly relate to the actual soils to be imported
- The results of the analysis must be compared with the approved current guideline values i.e. CLEA Soil Guideline Values, GAC's, C4SL's or other values that may have been previously agreed with the local authority;
- The local authority must approve of the results before the soils are placed on site;
- If not for immediate use, 'clean' soils must be segregated.
- Further representative sampling be required following placement

Imported material should preferably not be stockpiled on site but placed in the intended area straight away so as to not cause cross contamination.

Test results for the intended imported material must be submitted to the local authority and approved before being brought onto site.

All transfer notes and/or receipts for the soil should be retained. The thickness of the soil placed will require evidence either via photographs during its placement or by digging of post placement verification trial holes.

7.1 SITE WORKERS

The prior report considered the risks to site workers to be low to moderate, due to inherent site worker hazards (i.e. glass shards in soils); however, with provision of the appropriate usage of PPE, adherence to relevant HSE guidance during site works, maintenance of good hygiene practises and provision of a Watching Brief during site works, the risks to site workers are considered sufficiently ameliorated to low.

7.2 POTABLE SUPPLY PIPING

As a matter of prudence, it is recommended that any new potable piping is laid in a clean, fresh excavation (of sufficient and required depth, as specified by the contractor) and is suspended in an inert pea-gravel matrix, to prevent contact with residual site soils (however, made ground deposits seen to be limited in depth on site, thus are likely to be removed as part of site development). It is also recommended that the local water supply company are contacted in regards to their piping specification).

8.0 VERIFICATION PLAN

8.1 CAPPING MATERIAL

8.1.1 VERIFICATION OF CORRECT DEPTH OF COVER LAYER

- **DEPTH TESTING IN SITU**

  Small trial pit excavated to allow measurement of its depth by tape measure or measuring staff. This would normally be one pit per garden area. Photograph each test pit showing depth of cap.

8.1.2 PHOTOGRAPHIC EVIDENCE FOR VALIDATING THE DEPTH OF COVER

The following is guidance on photographs as additional evidence to support either of the above methods.

- Proof that the depth of inert cover has been installed
- Proof there is a geotextile separator and visual warning membranes (if used) between the made ground and suitable for use soils.
- Proof of the method of placement and different layers if appropriate
- Proof of the completed project
- Inclusion of geographic background features which will aid locating the photograph

9.0 WATCHING BRIEF

It remains possible that previously unexpected soil conditions may be encountered during the construction process. Examples may include oily pockets within the soil, potential for asbestos containing materials, black ashy materials, soils exhibiting strong odours, brightly coloured materials, and former demolition materials.

Should previously undiscovered contamination be encountered during the demolition/construction of the new buildings the following course of action should be adhered to:

1. The ground workers should report any suspected contamination immediately to the Client's site supervisor. The supervisor should contact the Client or their appointed agent who will in turn contact Castledine Environmental to request an engineer to visit the site to assess the extent of the 'contamination'.
2. Castledine Environmental shall make records of their inspection, and pass details of these to the Local Authority.
3. Where the conditions revealed differ from those previously anticipated, Castledine Environmental shall take samples as deemed appropriate to be dispatched for appropriate chemical testing.
4. Depending on the results of the testing either:
    a. no further work will be required;
    b. a further detailed risk assessment will be required; and/or
    c. Localised specific remedial measures will be necessary. Appraisal criteria will vary depending on the nature of the assessment.
5. The results of any such testing will be sent to the Local Authority Pollution Control Section, Local Authority development control section, and the appointed building inspector. If remediation is required, the LA/Building inspector will be informed of the date and time of the proposed works.
6. Remediation will be undertaken in accordance with a method statement submitted for approval. The works shall be supervised

where necessary by Castledine Environmental who shall provide a Verification Report for the Local Authorities.

7. A copy of the discovery strategy (Appendix B) should be lodged on site and provisions made to ensure that all workers are made aware of their responsibility to observe, report and act on any potentially suspicious or contaminated materials they may encounter.

10.0 REPORTING

10.1 CAPPING MATERIAL

When the Capping layer has been completed and verified, a report should be produced for submission to the Local Authority. This should confirm that the works have been done and confirm that the site is now suitable for its intended use.

The report should contain

- A summary of the remediation strategy and work undertaken.
- Copies of waste transfer note(s) and / or invoice(s) showing how much material has left site and its destination.
- A copy of the laboratory analysis results for imported material
- Copies of the transfer note(s) and / or invoice(s) for imported material showing the amount imported.
- Good quality photographs as indicated in section 8.1.2

10.2 GAS PROTECTION

Reporting of the verification activities will be completed following a site visit and verification of the installed gas protection measures. The verification report will summarise the extent to which the remedial methods have been achieved and supporting documentation to include site plans and membrane photographs.

11.0 REFERENCES

11.1 LEGISLATION AND REGULATIONS

11.1.1 ACTS

[1] Environmental Protection Act 1990, Part IIA: inserted by Environment Act 1995, Section 57. See Environment Act 1995 for text of Part IIA.

11.1.2 PLANNING REGULATIONS

[2] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 SI1999/No.293

[3] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000 SI2000/No.2867

11.1.3 CONTAMINATED LAND REGULATIONS

[4] The Contaminated Land (England) Regulations 2000. SI2000/No.227

[5] The Contaminated Land (England) (Amendment) Regulations 2001 SI2001/No.663

[6] The Contaminated Land (England) Regulations 2006 SI2006/No.1380

11.2 STATUTORY GUIDANCE

[7] Department of Environment, Food and Rural Affairs. 2012. *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.* Department of Environment, Food and Rural Affairs

[8] Communities and local Government, 2012: National Planning Policy Framework.

11.2.1 CL:AIRE

[9] Card G, Wilson S, Mortimer S. 2012. *A Pragmatic Approach to Ground Gas Risk Assessment. CL:AIRE Research Bulletin RB17*. CL:AIRE, London, UK. ISSN 2047- 6450 (Online)

11.3 BRITISH STANDARDS

[10] BS 5930:2015 Code of practice for site investigations

[11] BS 10175:2011+A2:2017 Investigation of potentially contaminated sites - Code of practice

[12] BS 8485:2015 +A1:2019 - Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

[13] BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)

11.4 NON-STATUTORY TECHNICAL GUIDANCE

11.4.1 ENVIRONMENT AGENCY

[14] Cassella Stranger, 2002. Model Procedures for the Management of Contaminated Land, Contaminated Land Report (CLR) 11, Department for Environment, Food, and Rural Affairs.

11.4.2 CIRIA PUBLICATIONS

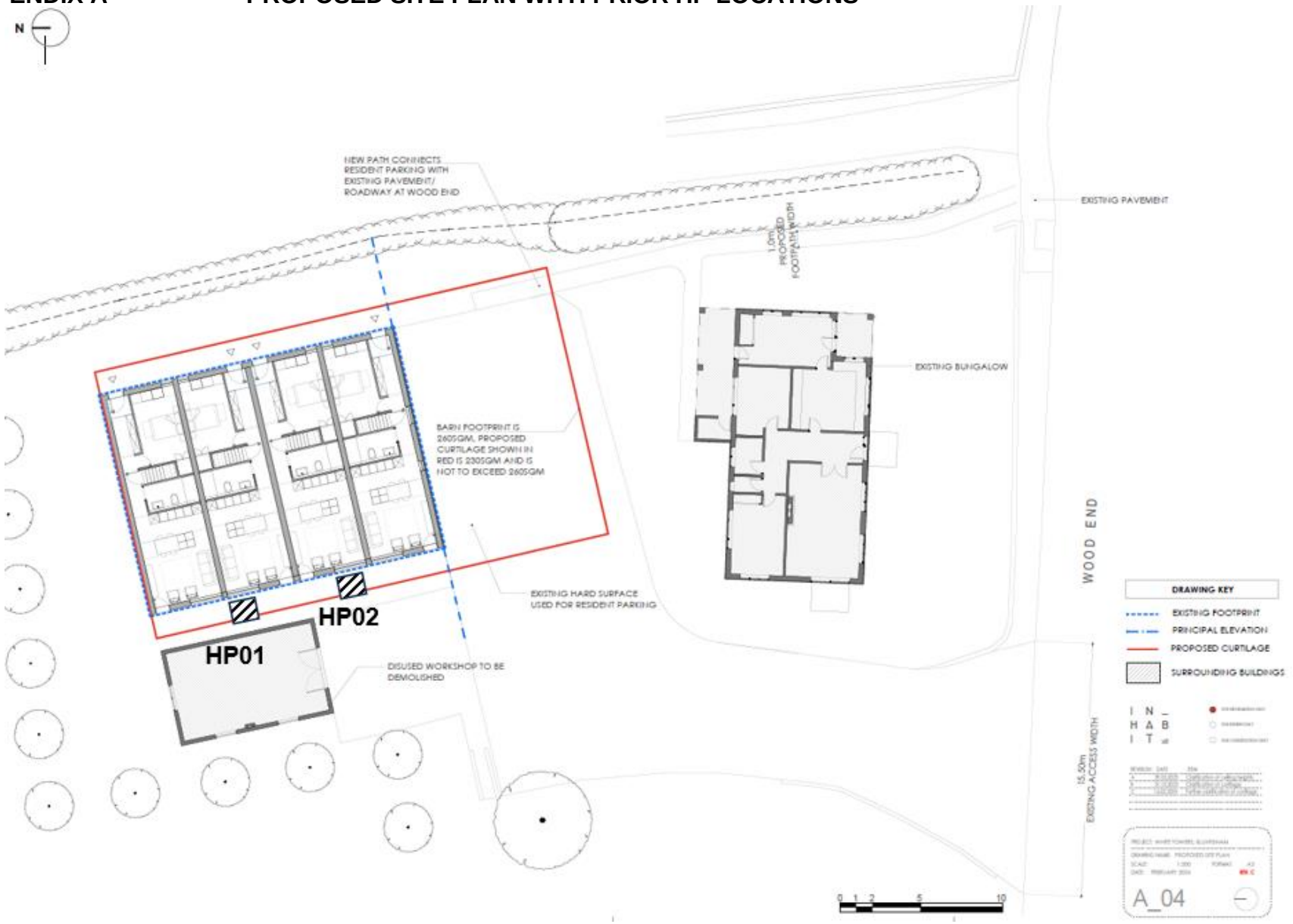
[15] Wilson, S., Oliver, S., Mallett, H., Hutchings, H., and Card, G.. 2007, *C 665 Assessing risks posed by hazardous ground gases to buildings* London: Construction Industry Research and Information Association

[16] Mallett, H., Cox, L., Wilson, S. and ,Corban M... 2014, *C 735 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases* London: Construction Industry Research and Information Association

[17] Wilson, S., Sopp, G., Mallett, H., Happold, B., Card, C., CBCard & Partners…2020, CIRIA C795 *Retrofitting hazardous ground protection measures in existing or refurbished buildings.* London: Construction Industry Research and Information Association

12.0 APPENDICES

APPENDIX A **PROPOSED SITE PLAN WITH PRIOR HP LOCATIONS**



APPENDIX B DISCOVERY STRATEGY

