Castledine Environmental

LAND CONTAMINATION SURVEYS

Desk Based Coal Mining Risk Assessment (CMRA)

on land at

Land East of Fox Hollow Cottage

Heol Penyfelin, Wrexham

LL11 3TU

Date: May 2026

Status:	Final Report
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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.

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.

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 AND SITE PROPOSALS

Castledine Environmental have been appointed by Kristin Wheeler to undertake a Preliminary Coal Mining Risk Assessment (CMRA) on the land east of Fox Hollow Cottage, Heol Penyfelin, Wrexham.

The site development proposal consists of a dwelling with a garage, access and private amenity space.

4.0 SCOPE

Castledine Environmental have prepared this report for the sole use and reliance of Kristin Wheeler and associated appointees for the purpose of ensuring compliance with:

- National Planning Policy Framework (NPPF) February 2025;
- Part C1 of the building regulations;
- Support of Planning Application.

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 objectives of the report are:-

- To assess historical coal mining activities on and adjacent to the site with respect to their potential impact on the site environment;
- Review of geological, hydrogeological and hydrological conditions at the site, pertaining to coal mining;
- Assess risk to surface stability from historical, present and planned future coal mining.

This report has been produced in order to discharge any relevant planning conditions outlined by the Local Authority and Environment Agency; however, further requirements may be imposed after the findings of this report that may need to be addressed at a later date.

5.0 SITE DESCRIPTION

The site is located in the south of the borough of Coedpoeth, to the west of Wrexham.

The site is rectangular in shape and from satellite images appears to be an area of rough ground in a suburban / rural residential and agricultural area. The site is surrounded by woods, lanes and low-rise residential buildings and their gardens.

6.0 HISTORIC OVERVIEW

Publicly available historical maps from circa.1872 show the borough of Coedpoeth to be established with similar structure to the present day. There is a colliery approximately 1km northeast at Talwrn, though further afield there is Vron Colliery 1.3km northeast, Broughton Colliery approximately 1.5km northeast and Bersham Colliery approximately 3km south east. There are extensive lead mines from approximately 1km to the northwest. There are also unnamed excavations approximately 400m to the east and north east. The area also has references to lime kilns and ‘lead’ (presumed quarries). The northeastern quarry is annotated ‘old quarry on the 1898 map.

The circa.1898 map also shows a ‘lead wash’ approximately 400m north west of the site, and numerous ‘old shafts’ around the northern area of Coedpoeth from approximately 700m to the north.

By circa.1914 the colliery at Talwrn to the north was marked as ‘disused’ and by circa.1938 the lead wash was annotated ‘lead mine’, presumably part of the extensive lead mines to the west.

On the circa.1963 map there is an ‘old shaft’ approximately 500m to the north west of the site.

There are no further significant mining features on successive maps. Although the maps are incomplete, there were no signs of new or significant areas of coal working shown on the maps within 250m after the oldest available (circa.1872).

7.0 SOILS AND GEOLOGY

British Geological Survey materials © NERC 2026 obtained from https://mapapps2.bgs.ac.uk/geoindex/home.html under the Open Government Licence.

7.1 ARTIFICIAL GROUND

BGS geological mapping has no records of artificial ground on the site. There are records of infilled ground 270m to the east of the site (a former quarry on the historical map).

7.2 SUPERFICIAL DEPOSITS

BGS geological mapping shows the site area to be adjacent to an outcrop of Devensian Till; a diamicton likely consisting of clay, silt, sand, gravel and cobbles. The nearby area also has alluvial deposits likely associated with the river to the south.

7.3 BEDROCK DEPOSITS

BGS geological mapping has records of the Pennine Lower and Middle Coal Measures Formation on the site (undifferentiated), comprising interbedded mudstones, siltstones, sandstones and coal seams. The Cefn Rock member (sandstone) is also shown in the nearby area. No dip of strata is shown on the maps acquired.

7.3.1 BEDROCK LINEAR FEATURES

BGS data shows an inferred coal seam trending northwest-southeast adjacent to the site.

The site is in the west of a fault block of Coal Measures, and there is a fault trending north-south approximately 250m to the west.

7.3.2 BOREHOLES

A historical borehole located approximately 250m to the southeast is an inspection record, apparently for a lead mine, and a borehole 150m to the northwest is an inspection record for a coal shaft. A string of records from 200m to the west have no data but are for coal shafts.

Though there were several, none of the available boreholes within 700m of the site had any records of coal seam depths, thickness or any workings.

7.4 COAL

The site is located in a coal mining reporting area.

The Mining Remediation Authority interactive mapping was not available at time of writing. From the available BGS maps and the CON29M Mining Remediation Authority report, the site is located in an area where coal mining is known to have taken place.

7.4.1 COAL SEAMS

From the 1:50k BGS map number 121, there is a coal seam very close to the site boundary which is most likely the Stinking Coal seam, on the lower edge of the Cefn Rock shown in the area. These are part of the 'Bettisfield Formation' marked as 'productive coal measures'.

From the 1:10k BGS map sheet SJ25SE, the seam is observed to run roughly across the site. The seam is confirmed to be the Upper Stinking Coal seam. No seam dip is given, though the thickness is listed as being in two leaves and having a thickness between 0.00m and 1.70m.

This is the only seam shown on the fault block upon which the site sits.

From the Generalised Vertical Section, the Upper Stinking Coal is underlain by two 'thin' coal seams and at least 100m before the next productive seam (Lower Stinking Coal at 0.00 – 1.20m thick).

7.4.2 COAL WORKINGS

From the CON29M report (Appendix B) the site does not lie 'within the potential zone of influence of any recorded underground coal workings'. However, it is stated that a coal outcrop is recorded to pass through the property boundary, and there is a possibility of unrecorded mining features.

The CON29M states that the site does not lie not within the boundary of an underground or opencast site from which coal is being removed, nor where

the Coal Authority is determining whether to /has granted a license. The site is also not within an area of historical opencast coal mining.

The CON29M report does not have any records of coal mining subsidence claims since October circa.1994, mine gas emissions, emergency call out incidents, working facilities orders, payments to owners of former copyhold land, or notices of withdrawal.

There are no available records to show whether the Upper Stinking Coal seam was worked locally.

7.4.3 COAL MINING ENTRIES

According to a CON29M Mining Remediation Authority report there is a coal mine entry 5.00m from the site boundary to the south.

This is listed as being ‘Minera Mine Deep Day Level No.6 Shaft’. The diameter is assumed to be 2.00m, and the location accuracy is stated to be 10.00m.

The calculation method for the zone of influence in not shown.

8.0 COAL MINING RISK ASSESSMENT

The site is within a larger area where extensive excavations / workings for lead, coal, lime and possibly other minerals has taken place. Historical maps show few features close to the site.

The geological maps show an outcrop of the Upper Stinking Coal seam on the site, which is locally up to 1.70m thick. There is also a mine entry, possibly associated with this seam adjacent to the site.

There is therefore estimated to be a Moderate level of risk for structures on the site associated with instability of any workings in the shallow seam.

Due to the significant amount of rock between the Upper Stinking Coal seam and the next productive seam beneath (Lower Stinking Coal seam), a very low extractible thickness to competent rock ratio is expected. It is therefore not considered that collapse of deeper workings will impact

structures at the surface, and a Low level of risk is estimated to apply. A Moderate to Low level of risk is estimated to apply from the Upper Stinking Coal.

9.0 RECOMMENDATIONS

It is recommended that the possible mine entry identified by the Mining Remediation Authority is located, and a proper area of influence is calculated, if possible, to determine whether proposed site structures are within its area of influence.

As part of this, it is recommended to scrape back the site soils to try identify any mining features such as crown holes, backfilled shafts or adits.

Following this it would be prudent to make excavations on the site to determine whether the Upper Stinking Coal seam is present on site at shallow depth. If these do not identify the seam, boreholes are recommended to probe deeper. Numerous excavations / boreholes are recommended to ensure that the depth can be triangulated, and to demonstrate to a high degree of certainty whether or not workings are present and/or in influencing distance.

An updated CMRA should be produced stating at what depth the seam is expected beneath the whole of the site and whether it has been worked, and any further recommendations.

It is also recommended that this report be submitted to the local authority before any further works, and as soon as practicable to ensure they are able to confirm the findings.

As with any development works, a watching brief is recommended for any unexpended indicators of mining instability on the site. This is outlined in Appendix C.

Independently of this, areas of quarrying have been identified in the areas around the site, and a geotechnical investigation to determine the possible depth of fill on the site is recommended.

10.0 REFERENCES

10.1 LEGISLATION AND REGULATIONS

10.1.1 ACTS

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

10.1.2 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

[4] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2017 SI2017/No.571

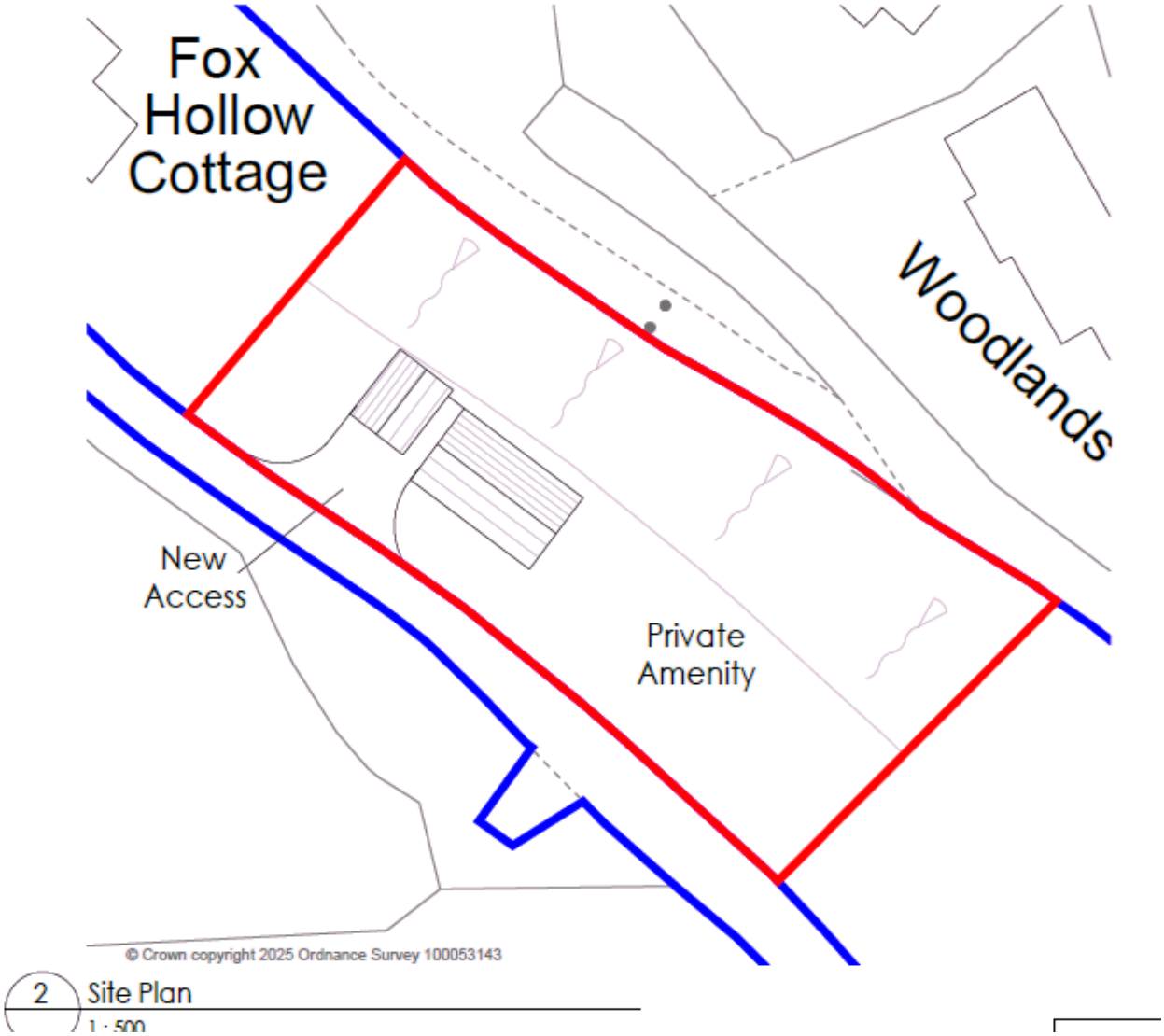
10.2 BRITISH STANDARDS

[5] BS 5930:2015+A1:2020 Code of practice for site investigations

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

11.0 APPENDICES

APPENDIX A PROPOSED SITE PLAN



APPENDIX B CON29M COAL REPORT

- Found as separate PDF(s)

APPENDIX C WATCHING BRIEF (COAL MINING FEATURES)

It remains possible that previously unexpected soil conditions may be encountered during the construction process. Examples may include circular depressions, areas of made ground or fill, or mine shaft caps.

Should previously undiscovered coal mining features 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 mining features 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. 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.
4. The results of any such testing will be sent to the Local Authority 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.
5. 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.