



EARTH ENVIRONMENTAL
& GEOTECHNICAL

Coal Mining Risk Assessment

St. John's CE Primary School

Rochdale

January 2020

On behalf of

Rochdale Borough Council



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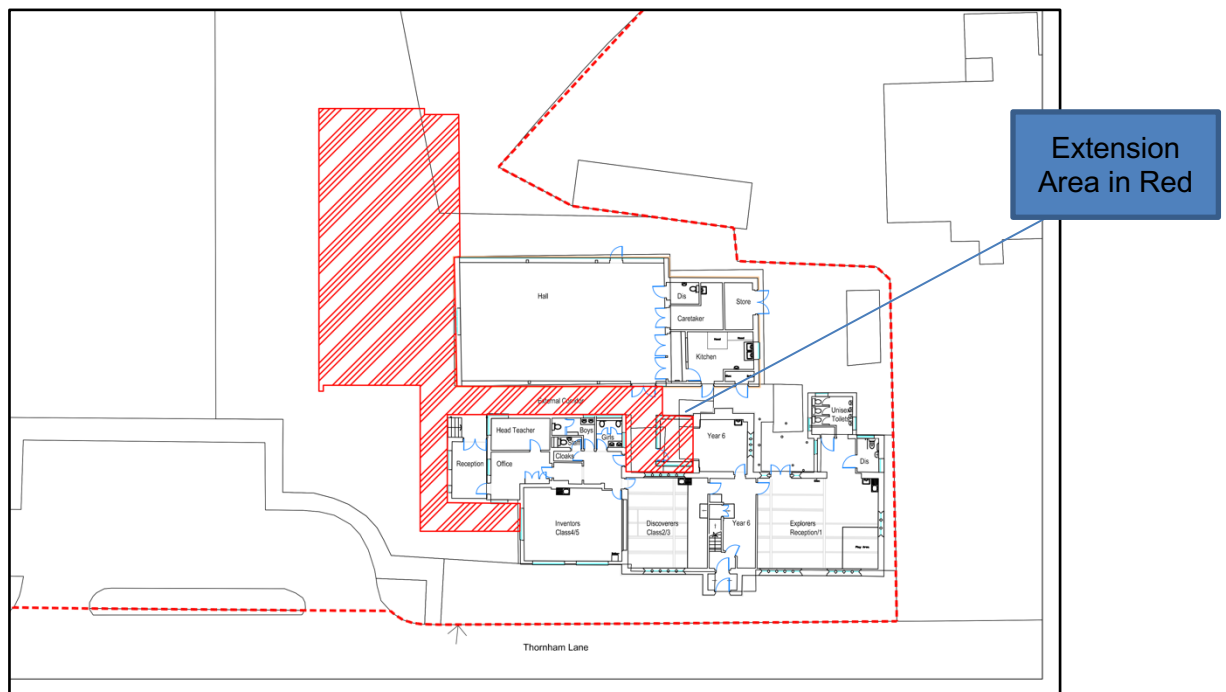
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1.0 INTRODUCTION

Appointment

- 1.1 Earth Environmental & Geotechnical Ltd have been commissioned by Rochdale Borough Council (the Client), to undertake a Coal Mining Risk Assessment at St. Johns CE Primary School in Rochdale.
- 1.2 The Client intends to develop the site by providing two classroom extensions and reconfiguration of a number of areas with the existing school, as shown below in Figure 1.
- 1.3 This Coal Mining Risk Assessment is required to assist with a potential future planning application.

Figure 1 Development Layout Plan



Objective

- 1.4 The purpose of the Coal Mining Risk Assessment is to collate available geological, mining and historical data in order to assess the potential for the site to be affected by underground mining. This report has been drafted in accordance with the Coal Authority (CA) Coal Mining Risk Assessment Template, January 2011.

Sources of Information

1.5 The Coal Mining Risk Assessment compiles a review of the following information sources:

- Online British Geological Survey maps and data.
- British Geological Survey of England, Sheet 85 Manchester 1: 50,000 scale, 2010 edition.
- Coal Authority Interactive Map Viewer.
- Coal Authority Mining Report dated 14th January 2020.
- British Geological Survey online borehole records.
- Google Earth imagery.
- Online Historical Ordnance Survey maps.
- Site Investigations in Areas of Mining Subsidence, FG Bell, 1975.
- The threat of abandoned mines on the stability of urban areas, Barry Clarke, IAE2006 Paper Number 379, The Geological Society of London, 2006.
- The collapse of shallow coal mine workings, Durham theses, Durham University, Garrard, 1981.
- Construction over abandoned mineworking's, CIRIA Special Publication 32, 2002.
- Abandoned Mineworking's Manual, CIRIA 2019.
- Rochdale Borough Council Planning Portal.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site is a Primary School that is located approximately 4km to the south east of Heywood town centre. The approximate National Grid Reference for the centre of the site is SD389120 408922 and the nearest postcode is M24 2SB.
- 2.2 The site is accessed from Thornham Lane. A location plan is shown below as Figure 2. A site photograph is shown in Figure 3.
- 2.3 The site lies within an area of open farmland with Thornham House located 10m to 15m to the north east of the main school building.
- 2.4 The school building was built in the mid 19th Century and is a single storey structure.

Figure 2 Site Location Plan

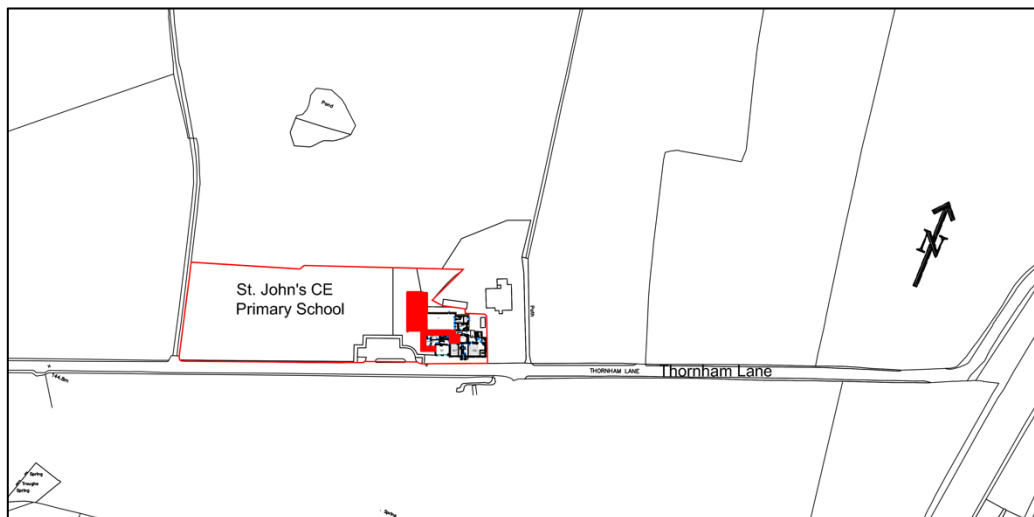


Figure 3 Site Photograph



3.0 ASSESSMENT OF DATA

Geological Information

- 3.1 The geology of the site has been determined from geological maps for the area and examination of Coal Authority (CA) records.

BGS Published Data Assessment

- 3.2 An extract from the most recently published geological map showing the approximate site location and key local geological features is presented below in Figure 4 with an extract of the relevant geological stratigraphic column presented subsequently as Figure 5.

Figure 4 Geological Map

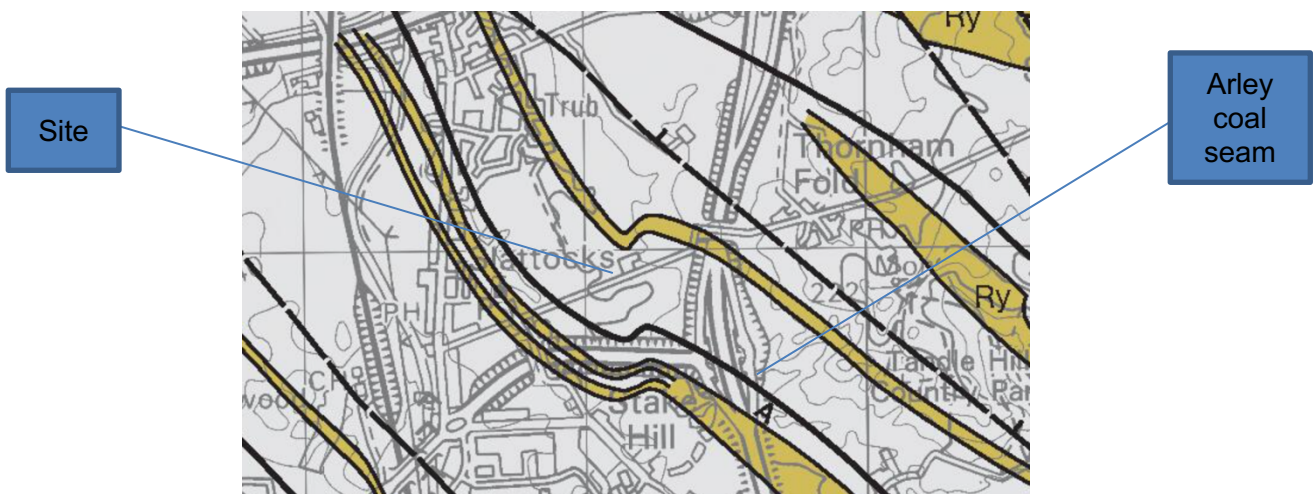
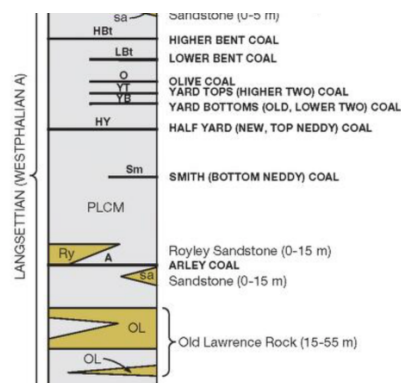


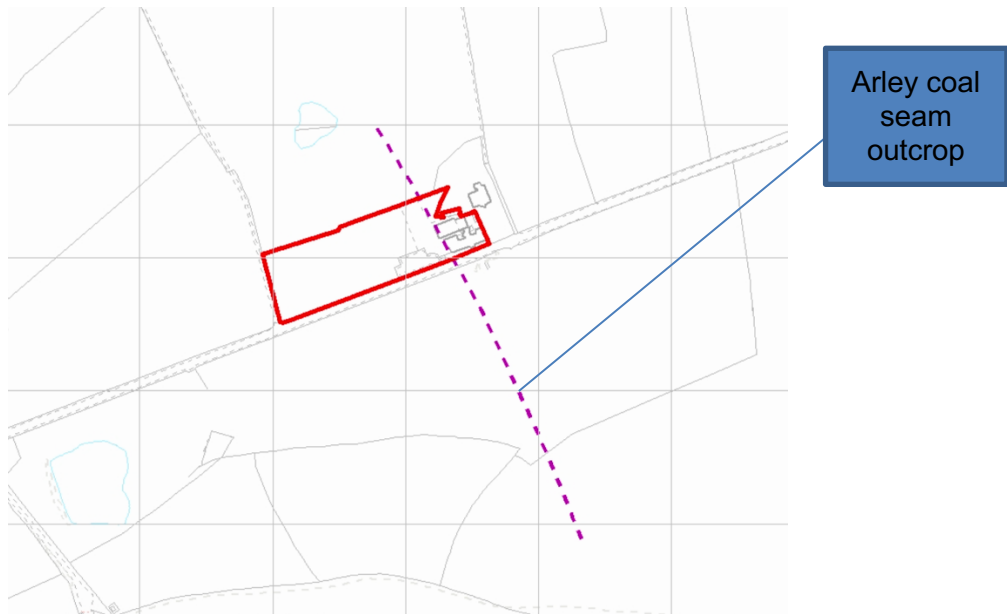
Figure 5 Extract of Geological Stratigraphic Column



- 3.3 The BGS states that the site is underlain by superficial deposits consisting of Devensian Sand & Gravel.
- 3.4 The solid geology beneath the site is recorded to be Pennine Lower Coal Measures Formation.
- 3.5 The geological map shows strata dipping to the south west, with the proven Arley coal seam outcropping offsite 150m to the south west.

3.17 There are no CA managed tips within 500m of the site boundary.

Figure 7 Extract from Coal Authority Report



3.18 There are no remediated sites or coal mining subsidence claims within 50m of the site boundary.

3.19 The Coal Authority Interactive Viewer shows a Development High Risk Area on the site associated with the outcropping coal seam. It does not show an area of shallow probable workings associated with the outcropping coal seam.

3.20 The CA has no records with regards to mine gas or mine water treatment schemes within 500m of the site boundary.

3.21 The CA have no records with respect to the following:

- Future underground mining;
- Coal mining licenses within 200m of the site boundary;
- Section 46 notices regarding land risk from mining subsidence;
- Withdrawal of support notices;
- Payments to owners of former copyhold land.

Site History

3.22 The available historical plans dating back to 1848 do not show any mining features on the site or in the local area. A school was shown on the site in 1848.

4.0 COAL MINING RISK ASSESSMENT

Scope of Coal Mining Risk Assessment

- 4.1 Objectives of the coal mining risk assessment are to provide a desk-based assessment of available geological and mining information relating to the site (and wider area) and to use this information so as to identify risks present to the development from the legacy of mining.
- 4.2 As part of the risk assessment, potential mitigation measures (if required) should be considered, including any necessary remedial works.
- 4.3 The outcome of the risk assessment should demonstrate to the Local Authority that the proposed development is or can be made safe (and stable) to meet the requirements of the National Planning Policy Framework (NPPF).

Data Limitations

- 4.4 It should be appreciated that it did not become a legal requirement to deposit coal mining abandonment plans until the 1870's and that this requirement was not rigorously enforced for some time after. Many shallow coal seams were worked prior to the introduction of first edition Ordnance Survey Maps and information on these workings is often not available. Therefore, if coal seams were accessible then there is the potential that they could have been worked by formal or informal means.
- 4.5 It is also possible that if unrecorded workings are present then unrecorded mine entries may be present.

Coal Mining Risks

- 4.6 The risks associated with coal mining are as follows:
 - Collapse of relict workings beneath buildings causing damage to the building fabric and infrastructure.
 - Migration of mine gases from old mine workings and mine entries resulting in accumulation of flammable and asphyxiating gases in confined areas.
 - Consolidation of relict workings and overlying strata causing structural defects in building fabric and infrastructure.
 - Failure of mine entries causing loss of ground beneath building and external areas.
 - Spontaneous combustion of old mine workings.

Summary of Risk

- 4.7 The Coal Authority report confirms the absence of proven or unrecorded mine workings.
- 4.8 The local geology consists of deep superficial deposits up to 80m thick, underlain by the Pennine Lower Coal Measures Formation.
- 4.9 There is an ambiguity between geological mapping and Coal Authority mining records for the site. The Coal Authority have placed the Arley coal seam outcrop on the site. Earth Environmental & Geotechnical have contacted the Coal Authority about their records and they state:

“In this instance the outcrop data is based on County Geological Sheet 88SE and records inherited from NCB/British Coal placing the outcrop in its current position. And as you state, this differs from BGS 1:50k mapping but we assume that the NCB position was derived by either a surveyor or geologist specialising in coal mining geology in this area”.

- 4.10 We do not accept this interpretation of the local geology as the area was re-surveyed in 2003-2005. Geological map 88SE is dated from 1929 and therefore of some antiquity.

Proposed Mitigation Strategy

- 4.11 Irrespective of the ambiguity in the interpretation of the local geology, the fact is that there is very deep drift material overlying rockhead, up to 80.69m thick.
- 4.12 Any coal seam outcrop is therefore considerably beyond the depth range of the surface and no remedial measures are required for the proposed development.

APPENDIX 1

COAL AUTHORITY MINING REPORT

APPENDIX 2

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

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The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

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Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.