

Our Ref: BEK/22019/220801/SD Rev A

1 August 2022

FAO Sue & Gary Davies

BANK TOP FARM

Hollingworth Road

Littleborough

OL15 0AU

Desktop Coal Mining Risk Assessment – Bank Top Farm, Hollingworth

INTRODUCTION

BEK Enviro (BEK) has been commissioned by Bank Top Farm to carry out a Coal Mining Risk Assessment Letter Report for the land located at Bank Top Farm, Hollingworth Road, Littleborough (hereafter referred to as 'the site') to assess the risks from subsidence associated with historical coal mining at the site.

The site is a triangular shaped plot of grassland associated with Bank Top Farm and is shown in Figure 1 below:



Figure 1: Aerial Image for the Site

The objectives of the Coal Mining Risk Assessment are to:

- Present a desk-based review of selected items of available information reviewed on the coal mining issues which are relevant to the application site;



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- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impacts of issues;
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary intrusive site investigation works and/or remedial works and/or demonstrate how coal mining issues have influenced the proposed development;
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

To achieve the objective BEK will review the following information:

- Coal Authority website 'interactive map'
- Consultants Coal Mining Report
- British Geological Society (BGS) website
- OS Plans
- Groundsure Enviro+GeoInsight Report

Limitations

The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserves the right to amend the conclusions and recommendations if further information becomes available.

However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.

BACKGROUND

An engineer from BEK visited the site during February 2022 to carry out a site walkover/inspection.

The site is located to the east of Hollingworth Road and to the west of an unnamed road which leads to the main buildings associated with Bank Top Farm. The site is approximately 0.5 km south of Littleborough and the National Grid Reference of the centre of the site is 393599, 415664.

The development site boundary covers a triangular area of field, adjacent to a B-road. On the side of an open hillock currently used for livestock. The site is delineated to the east and west by dry stone walls which join in the south of the site. The north of the site is open.

It is proposed to construct a 2-storey building with adjacent car park and access road on site. This would be used as a farm shop and café, with a terrace, community room, kitchen,

butchery, toilets and refuse store. (see Figure 2). The new build will be cut into the existing banking (see Figure 3).

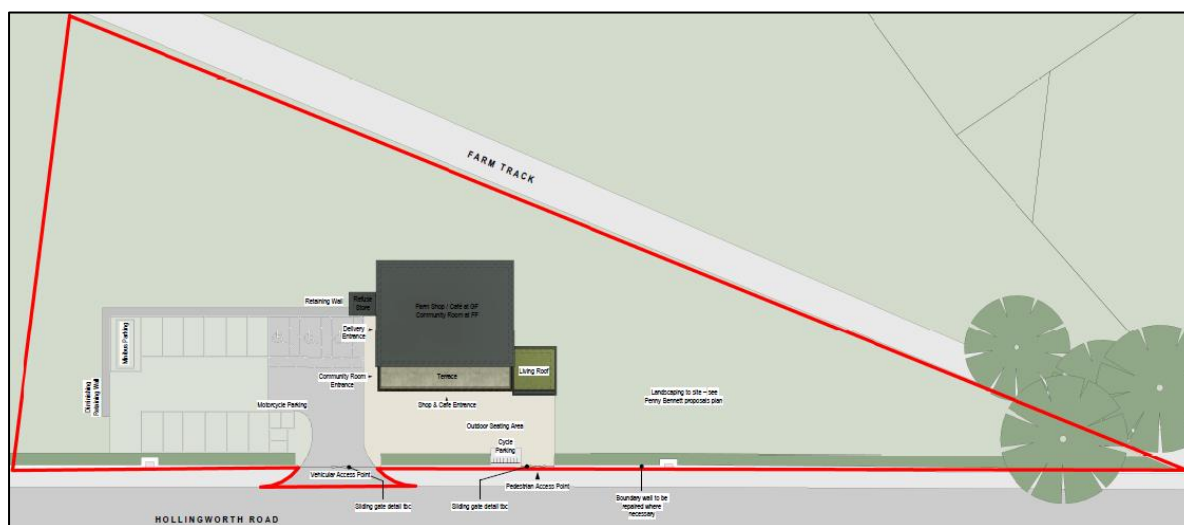


Figure 2: Proposed Development Layout

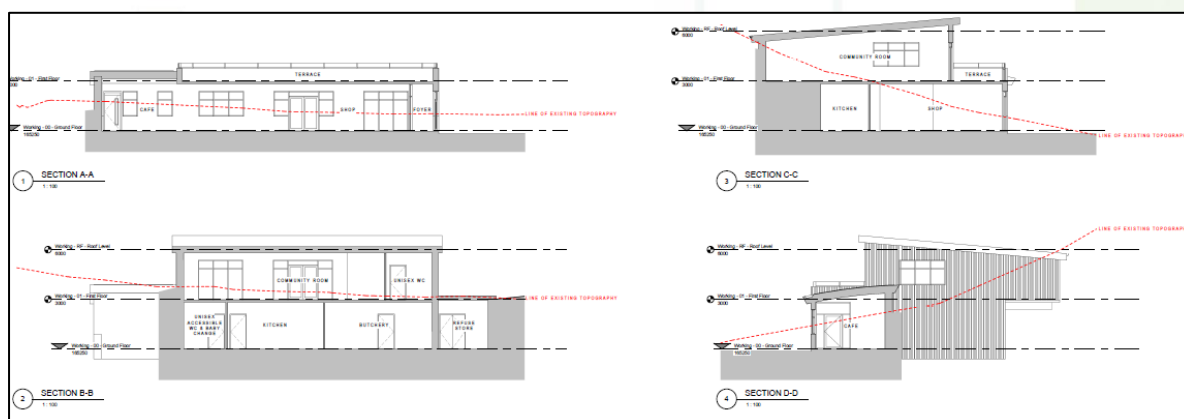


Figure 3: New Build Cut Into the Existing Banking

PREVIOUS WORK

BEK has prepared a Phase 1 – Preliminary Risk Assessment (PRA) for the site (Ref: 22019-1, dated April 2022). The site history and environmental setting is summarised in the following sections.

Site History

1891-1910 - The site has remained virtually unchanged since the earliest OS maps were produced back in 1891 and 1910. Hollingworth Road runs north-south adjacent to the site up to clough field. A farm track runs along the east side of the site boundary. A reservoir is approximately 100 m south-west of the site and Clough Field Oil and Tallow Works is north-west approximately 200 m away.



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1930 - Quarried land and/or outcrops are now 100 m north and 50 m north-east of the site boundary. A spring is marked in the centre of the site boundary as well as just north of the north-west of the site, adjacent to the road.

1961 - No change within 100m of the site, however, some residential infrastructure has been built 250m from site along Hollingworth Road.

2012 - The aerial satellite images provided from the Enviro+GeoInsight Report from Groundsure provide data continuing from older OS maps. A possible track from the access gate has been formed leading to what looks like either excavated ground or a store pile of lime. The commercial complex north-west of the site has now been removed, leaving hardstanding ground.

2019 - The most recent aerial satellite image, very little change occurred since 2012, the hardground to the north-west has been overgrown with some vegetation. The site no longer has a trail leading from the access gate or excavation feature. It is likely the feature seen in 2012 was a lime pile and has subsequently been removed

Environmental Setting

Category		Comments
Geology	Artificial	There is no artificial ground (made ground) present on site.
	Superficial	There is no superficial strata underlying the majority of the site however there is an isolated area in the south of the site underlain by low permeability Glacial Till (Boulder Clay).
	Bedrock	Solid geology underlying the majority of the site comprises the 'Milnrow Sandstone Group', the north-eastern corner of the site is underlain by the 'Pennine Lower Coal Measures Formation'.
Hydrogeology	Superficial	There is no underlying superficial deposits over the majority of the site however the small area of superficial deposits in the south of the site (ie Boulder Clay) are classified as a 'Secondary Undifferentiated' aquifer
	Bedrock	The underlying bedrock is classified by the EA as a 'Secondary A' aquifer
Hydrology	Nearest Surface Water	The Enviro+GeoInsight Report indicates that there are no surface water features on site however, the site inspection conducted by BEK in February 2022 indicated the presence of a spring on site. This was supported by historic OS maps. The nearest significant surface water features within 250 m are the Roch canal, a manmade watercourse for inland navigation, not influenced by normal tidal action is located some 193m north-west of the site.
	Discharge Consents	There are no licensed discharge consents located on or within 250 m of the site.
	Pollution Incidents	There has been no EA recorded pollution incidents on/within 250 m of the site.
Mining	Coal Mining Consultation Area	The site is located within Coal Mining Reporting Area and the north of the site is close to an area denoted as a 'Development High Risk Area'. A Mine Entry (understood to be an Adit) is located some 55 m of the site to the north.

Landfill Sites/Contaminated Land	Known	There are no landfills/waste management facilities located on/within 250 m of the site. However there is a historical landfill located some 207 m north-west of the site first recorded in 1835.
	Potential	Numerous potential sources of contamination on the site
Radon	'less than 1% of homes are above the action trigger level' and that 'no radon protective measures are necessary'	

Table 1: Summary of Environmental Setting of the Site

Previous Site Investigation

BEK has sought site investigation information from the BGS website. There was one exploratory location to view within 250 m of the site which was located some 234 m west of the site. The record relates to 'Cleggswold Colliery' located at national grid reference 393344, 415766. The borehole identified a number of seams of coal as shown within the table below:

Seam Name	Depth (m)	Thickness (m)
Inch Coal	46.76	0.02
Forty Yard Mine Coal	72.79	0.41
Inch Mine Coal	82.07	0.03
Bullion Coal	103.10	0.31
Mountain Mine Coal	114.73	0.66

Table 2: Summary of Coal Seams identified in BGS Borehole SD91NW6

The BGS Borehole location is shown on Figure 4.



Figure 4: BGS Borehole Locations

COAL AUTHORITY DATA

The site is located within a Coal Authority (CA) defined coal mining consultation area.

Low Risk Sites are deemed to be land where coal mining has taken place, however it was at such depth not to pose a risk to new development and it therefore contains no known recorded risks and as such no further assessment is required.

For Low Risk Sites, the Coal Authority state that 'there is no need for you to submit any coal mining information with your planning application and The CA will not be consulted by the LPA'.

High Risk Sites are deemed to be landholdings located within an area known to contain legacy risks that include:

Mine entries (shaft or Adit);
Shallow Coal Workings (recorded and probable);
Workable coal seam outcrops;
Mine gas sites and areas;
Recorded coal mining related hazards;
Geological features (fissures and break lines); and,
Former surface mining sites (sometimes using historic opencast extraction methods).

Coal Mining Information

To determine if a site may have unrecorded or recorded coal mine workings requires a consideration of a wide range of information sources and BEK has completed a review of relevant information in relation to potential coal mining activities.

Several maps extracted from the Coal Authority website are presented below. The Coal Authority Interactive Map indicates that there is an area in close proximity to the north of the site which is denoted as a 'Development High Risk Area'. It is possible that the north of the site is located within a 'Development High Risk Area'. Such areas are shown in Figure 5 below. Figure 6 (below) shows that a coal outcrop is situated in close proximity to the north of the site.

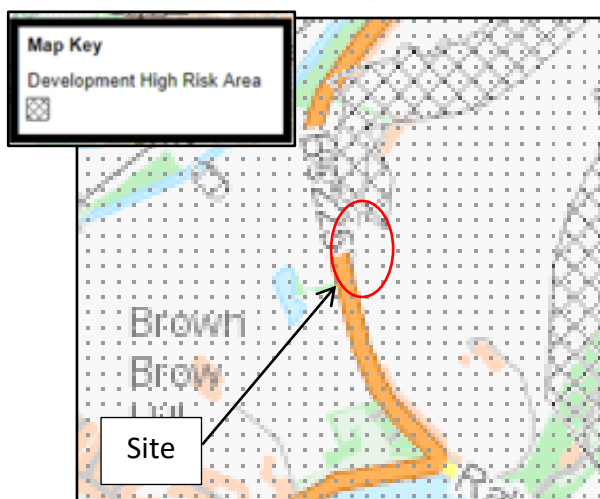


Figure 5: Development High Risk Area

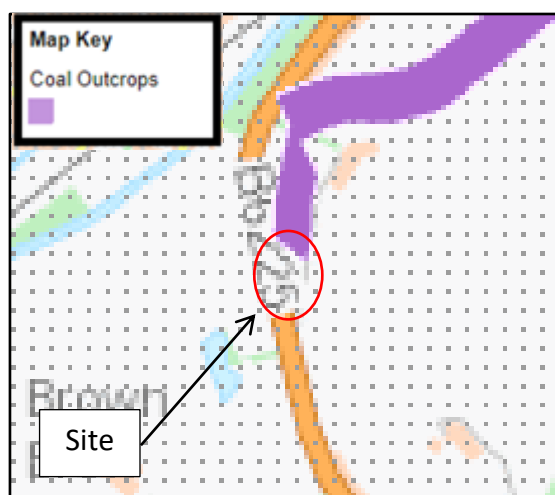


Figure 6: Coal Outcrops Map

Figure 7 shows that the site is not located within an area where 'past shallow coal mine workings' are present. Figure 8 shows that the site is located close to an area of 'probable shallow coal mine workings'.

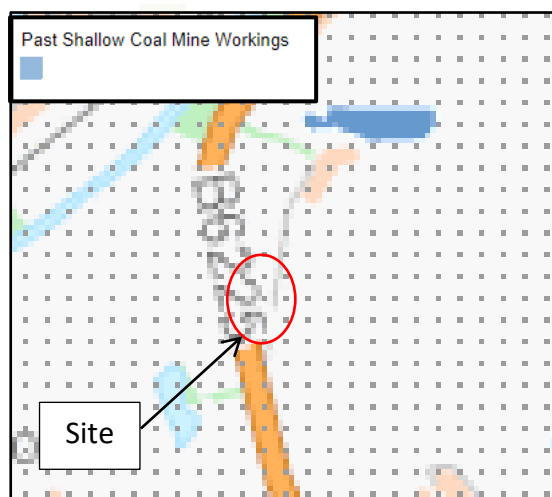


Figure 7: Past Shallow Coal Mine Workings

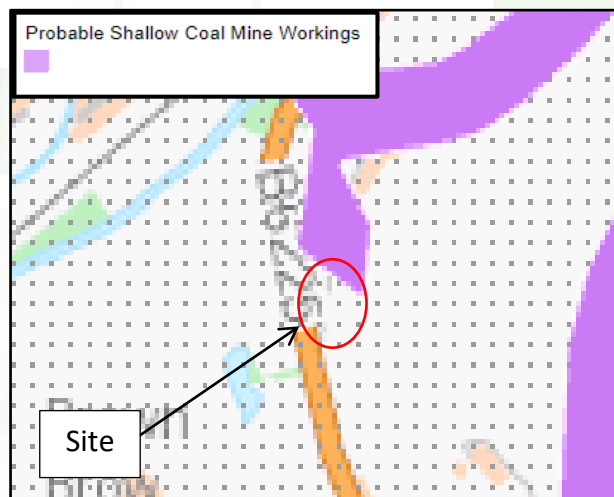


Figure 8: Probable Shallow Coal Mine Workings

From Figure 9 it can be seen that the site is not located within an area of 'surface mining (past and current)'. Figure 10 shows the site to be located outside the extents of unlicensed opencast workings.

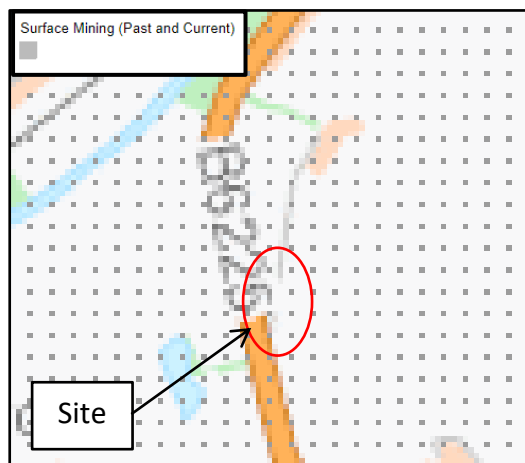


Figure 9: Surface Mining

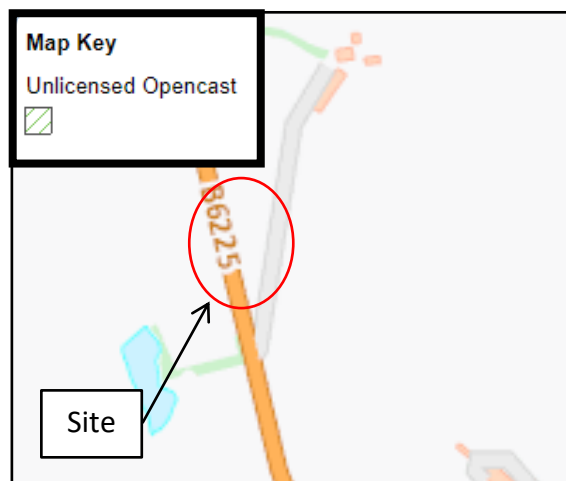


Figure 10: Unlicensed opencast workings

The site is shown to be located within an area of underground workings and the site has not been served by legal notices as shown within Figures 10 and 11 below.

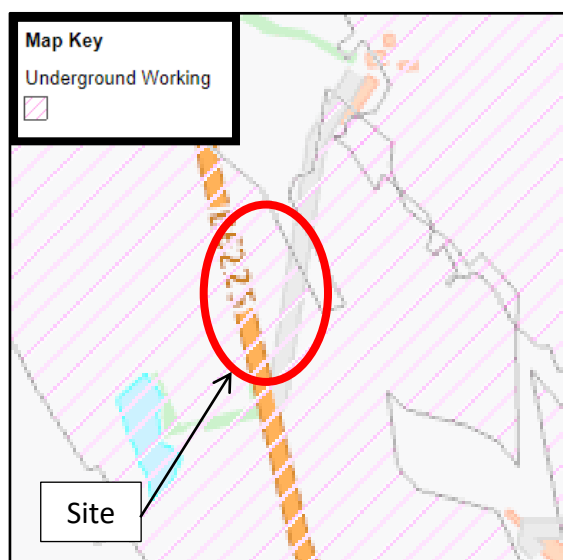


Figure 11: Underground Workings

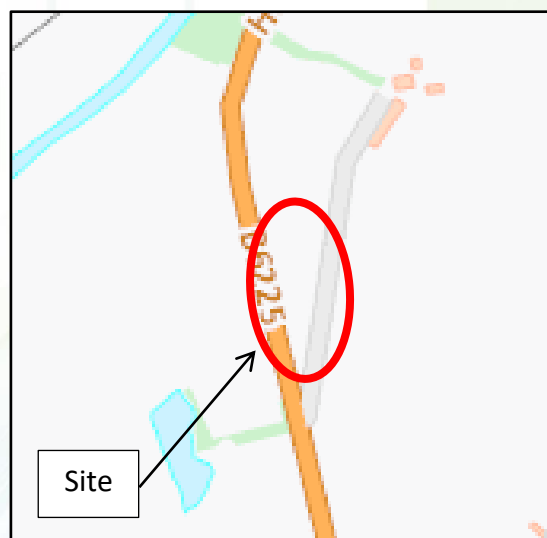


Figure 12: Legal Notices (none present)

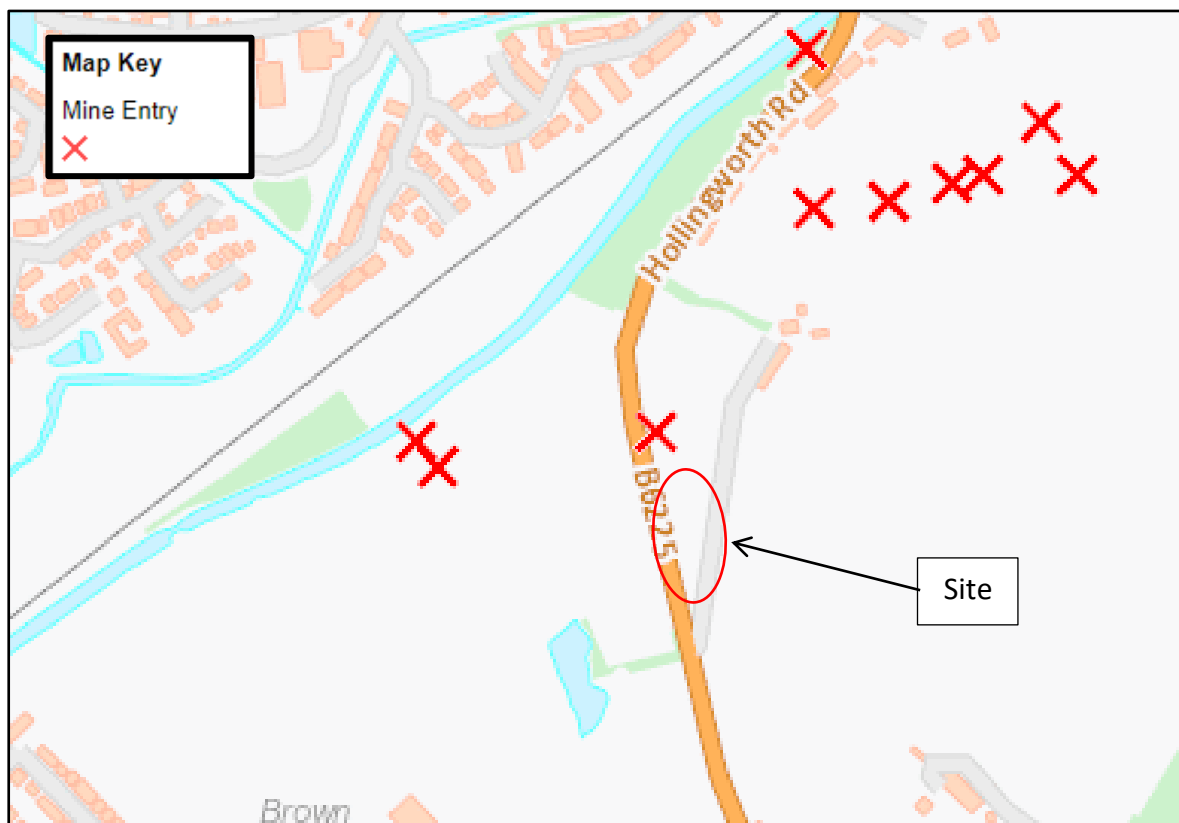


Figure 13: Mine Entry Map

It can be seen from Figure 13 that a mine entry (adit) is located close to the north of the site (Shaft Ref No: 393415-010). Further shafts are located in the area however, these are of sufficient radial distance from the site to be considered to not pose a risk to the site (with consideration to the zone of influence (20 m)).

COAL MINING RISK ASSESSMENT

A Consultants Coal Mining Report confirms that past coal mining has taken place below the site with a depth of the working of 115 m associated with the 'Lower Mountain' coal seam. This correlates with the BGS borehole located some 234 m west of the site which identified 'Mountain Mine Coal' some 115 m beneath ground surface. This is outside the 30 m zone of influence of the depth of shallow coal mine workings. As such, BEK does not consider the workings to represent a potential risk at the surface from subsidence.

There are no records of coal authority investigative or remedial activity (including mine gas and coal mining subsidence) in the vicinity of the site according to the Coal Authority Consultants Coal Mining Report.

Further consideration has been given to an adit (Ref No: 393415-010) located to the north of the site (NGR: 393570, 415773). It is noted that the adit is located approximately 55 m north of the site, as such the mine entry and its zone of influence does not infringe on the site.

In addition to the presence of the adit to the north of the site, a geological fault is located in the north-eastern corner of the site and a coal outcrop (conjectured) is located to the north of the site as shown within the figure below:

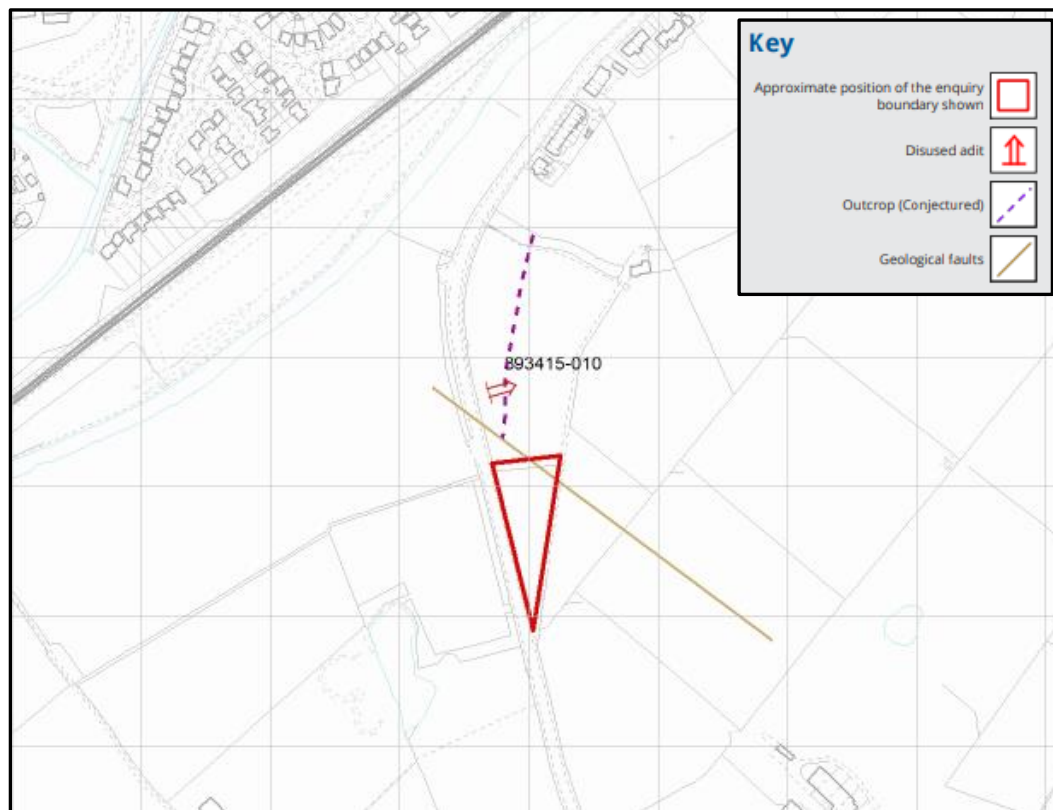


Figure 14: Coal Authority Summary of Findings

A review of the bedrock geology of the site indicates that the site is underlain by Milnrow Sandstone with the north-eastern corner of the site shown to be Pennine Lower Coal Measures Formation. This correlates with the geological fault identified within Figure 14. Furthermore, the conjectured coal outcrop terminates at the geological fault line to the north of the site. The outcrop is identified to be the 'Upper Mountain' seam located some 18 m north of the development site with a bearing of 186°.

The adit (Ref No: 393415-010) is shown to be located approximately 55 m north of the site and approximately 70 m north of the proposed building on site.

The bearing of the adit is 74° as such due to the location and the bearing of the adit it would not be anticipated to interact with the proposed development site.

CONCLUSION

A review of the available information relating to coal mining for the site indicates that past coal mining has been undertaken beneath the site at depths of 115 m last mined in the year 1900. However due to the depth of the worked coal seam the risks are considered to be very low. In any case, the location of the Development High Risk Area and the coal outcrops are limited to the northern most part of the site and outside the location of the proposed new build.



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An adit and coal outcrop are located to the north of the site however the distance (55 m) and bearing of the adit away from the development site (74°) and the distance of the coal outcrop from the site (17.6 m) indicates that the proposed development is outside the zone of influence of the adit.

Based on the assessment of the available information, risks from subsidence due to historic coal mining activities are considered to be very low/negligible and are not considered further.

I trust the above is satisfactory. Should you require anything further please do not hesitate to contact the undersigned.

Yours sincerely

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ANNEX A

Consultants Coal Mining Report