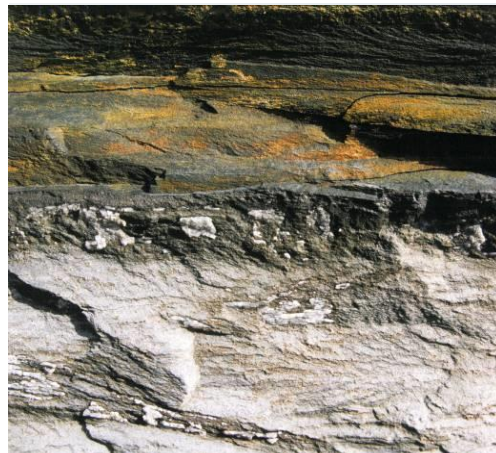


Sovereign Industrial Estate, Huyton, Liverpool

Mining Stability Report Including Coal Mining Risk Assessment

October 2023



JWHROSS

CONTROL SHEET

CLIENT: DAVOS Property Developments Ltd

PROJECT TITLE: Sovereign Industrial Estate, Huyton, Liverpool

REPORT TITLE: Mining Stability Report including Coal Mining Risk Assessment

PROJECT REFERENCE: 156463/GL/J/R1

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Appendices

Appendix 1 – Drawing No. 156463/9001 – Site Location Plan

Appendix 2 – Drawing No. 156463/9002 – Composite Site Plan

Appendix 3 – Coal Authority Consultants Coal Mining Report dated 24th July 2023, ref:
51003368666001

1.0 Title

Report relative to the mining stability under and adjacent to the site of a proposed retail development in Huyton, Liverpool (including Coal Mining Risk Assessment).

2.0 Instructions

This Report has been prepared by JWH Ross as instructed by the Client, Messrs DAVOS Property Developments Ltd; email instruction dated 30th August 2023 refers.

The extent of past mining in minerals other than coal, e.g., ironstone, fireclay and limestone, within the District is considerable and often overlooked. This report addresses mining stability in relation to all mineral extraction. It is particularly noted that subsidence damage caused by the extraction of minerals other than coal is not covered by the Coal Mining (Subsidence) Act 1991.

This Report includes a Coal Mining Risk Assessment, as may be required for planning applications where a project is located within a Coal Mining Development Referral Area.

3.0 Limitations

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The Report is based on the geological and mining records at present available. The contents of the Report are believed to be accurate but since mining records and information for this District may be incomplete, we cannot accept responsibility for any insufficiency or inaccuracy in the information provided.

We must advise that this Report only examines the solid geology and associated minerals; it is not to be construed as inferring that the engineering or chemical properties of the natural or man-made superficial deposits are satisfactory or otherwise, since these latter matters are outwith the scope of our Brief.

4.0 Subjects

The Subjects comprise an area of industrial land situated between Cronton Road and Wilson Road at the Sovereign Industrial Estate in Huyton. The site area is shown outlined in red on appended Drawing 156463/9002 and is approximately centred on National Grid coordinates SJ 45699 89497. At the time of reporting, we understand that the current proposals relate to the partial demolition, reconfiguration and refurbishment of existing employment floorspace to create 2 No. industrial warehouse buildings with ancillary offices (Classes E(g)(iii), B2 and B8) with dedicated servicing and car parking arrangements; erection of 1 No. retail unit (Class E) with external display area and dedicated car parking and servicing arrangements; retention and amendment of existing site accesses along with internal estate roads; 2 No. substations; landscaping; and associated works

5.0 Researches

In connection with this investigation, we have researched and taken into account information from the undernoted sources:-

- Published geological maps, including County Series Lancashire CVII.SW and Lancashire CVII.SE
- Historical Ordnance Survey topographical maps prepared to scales of 1:2500 and 1:10560
- Memoirs of the Geological Survey. England and Wales, The Geology of the Country Around Prescott Lancashire, published 1882.
- Abandonment plan catalogues, mine plan records and previous mineral investigation Reports held in the mining Archives of JWH Ross
- Non-confidential borehole data held by the British Geological Survey
- Coal Authority Consultants Coal Mining Report dated 24th July 2023, ref: 51003368666001

6.0 Geology

According to published geological map information, the solid strata underlying the Subjects belong to the Pennine Middle and Lower Coal Measures Formations of the Carboniferous Period. The strata are indicated to dip towards the southeast at a gradient of approximately 1 in 5. The foregoing series of rocks are sedimentary in nature and consist of sandstones, siltstones and mudstones together with numerous seams of coal.

In order that the relationships between each mineral horizon may be better appreciated, we have shown below, in tabular form, the general succession together with the average thickness and approximate depth to the principal seams, with the Felcroft Mine as a convenient datum. This section is given as a guide only since the seam thicknesses and strata intervals are known to vary significantly across the District:-

Seam	Average Thickness (m)	Approx. Depth (m)
<i>Felcroft Mine</i>	<i>2.1</i>	<i>0 – relevant datum</i>
<i>Discovery Mine</i>	<i>2.1</i>	<i>14</i>
<i>Yard Mine</i>	<i>0.9</i>	<i>25</i>
<i>Earthly Delf</i>	<i>2.7</i>	<i>43</i>
<i>Higher Florida (Higher Bugg)</i>	<i>2.3</i>	<i>45</i>
<i>Lower Florida (Lower Bugg)</i>	<i>0.8</i>	<i>46</i>
<i>Cheshire Mine</i>	<i>0.7</i>	<i>63</i>
<i>Tenlands Mine</i>	<i>4.0</i>	<i>136</i>
<i>Bastians Mine</i>	<i>1.2</i>	<i>160</i>
<i>Prestcot Main Delf</i>	<i>4.8</i>	<i>224</i>
<i>Burgy Mine</i>	<i>1.5</i>	<i>236</i>
<i>Rushy Park</i>	<i>1.4</i>	<i>276</i>

Published geological plans suggest that the continuity of the sedimentary strata beneath the Subjects has been disturbed by a geological fault, which is inferred to traverse through the site on an approximate north to south trend. The movement attributable to the aforementioned fault is inferred to displace the strata down to the east by some 48 metres. We have shown the conjectured position of this fault as derived from this source on appended Drawing No. 156463/9002.

It is important to understand the nature of geological faults and the uncertainties which attend to their precise position on the surface. Faults are planes of movement about which adjacent blocks of rock strata have moved relative to each other. They commonly consist of zones, perhaps up to several tens of metres wide, containing several fractures. The portrayal of such faults as a single line on the geological map is, therefore, a generalisation.

In order to aid out description of the geological structure underlying the site, we propose to deal the parts of the site on either side of the aforementioned fault separately.

East of the Fault

In the area of the site to the east of the, the County Series Geological Plan infers that the Yard Mine will outcrop some little distance to the south of the subjects on an approximate southwest to northeast trend. Considering the prevailing strata dip towards the southeast, an outcrop position as such infers that the Yard Mine will not be present beneath the Subjects, having been eroded away at some time in the past.

The aforementioned geological plan infers that the Earthly Delf will outcrop through the southern part of the Subjects with the Upper and Lower Florida Mine outcropping through the central part of the area and Cheshire Mine some little distance to the north of the site. The aforementioned conjectured outcrops all trend approximately southwest to northeast as shown on appended Drawing No. 156463/9002. Again, considering the prevailing strata dip to the southeast, outcrop positions as such infer that the aforementioned seams will be present beneath the Subjects at shallow depth to the southeast of their respective outcrop positions.

West of the fault

In the area of the site to the west of the fault, the relevant County Series Geological Plan infers that the Cheshire Mine will outcrop to the south of the Subjects on an approximate southwest to northeast trend. Considering the prevailing strata dip towards the southeast, an outcrop position as such infers that the Cheshire Mine will not be present beneath that area of the Subjects to the west of the fault, having been eroded away at some time in the past

The aforementioned plan infers that two unnamed coal outcrop through the southern part of this area, given our understanding of the general succession of the strata hereabouts, it is possible that these are representative of the Tenlands Mine and Bastians Mine. The plan also infers that the Prescott Main Delf and Burgy Mine outcrop through the central part of the area with the Ruchy Park to the north of the Subjects.

As with the area to the east of the fault, the aforementioned conjectured outcrops all trend approximately southwest to northeast as shown on appended Drawing No. 156463/9002. Again, considering the prevailing strata dip to the southeast, outcrop positions as such infer that the aforementioned seams will be present beneath the Subjects at shallow depth to the southeast of their respective outcrop positions.

A lack of site specific borehole information precludes us from determining the depth and nature of superficial deposits beneath the Subjects with any accuracy. Information gleaned from historical boreholes sunk in the vicinity of the site, held in the archives of the British Geological Survey however,

suggests that rockhead may lie in the order of 2 - 3 metres below ground. Published geological mapping suggests that the superficial deposits underlying the Subjects will comprise glacial till.

7.0 Past Mining

Extensive past mining has taken place in the District within coal seams belonging to both the Pennine Middle and Lower Coal Measures. Our search of Abandoned Mine Plan Catalogues, together with records and plans held in the Archives of JWH Ross has revealed no plan record of extraction extending under or in close proximity to the site of the Subjects, the nearest recorded workings some 100 metres to the north of the Subjects from the former Tarbock Colliery.

We should point out, however, that the winning and working of the minerals in this District commenced an extremely long time ago, before it became a statutory requirement to keep plans of mines (1850) and to lodge with the Secretary of State all plans of abandoned mines (1872). Consequently, the plan record information at our disposal may be incomplete and the possibility that early uncharted workings may have taken place must be fully considered.

In this regard, cognisance need be taken of any workable seams that occur beneath the site within influencing depth of the surface, namely the Earthly Delf, Upper and Lower Florida Mine, Cheshire Mine, Tenlands Mine, Bastians Mine, Prescott Main Delf, Burgy Mine and Rushy Park where they are inferred to underlie the Subjects at shallow depth.

While we have been unable to locate and plans or records of workings having been conducted directly beneath the site in any of the aforementioned seams, we have reason to suspect that unrecorded extraction may have taken place at this locality. A Coal Authority Consultants Mining Report obtained in respect to the site provides the positions of some 7 No. mine entries located within the boundary of the Subjects, or within influencing distance thereof. The presence of these shafts yet with a lack of mine plan records provides a strong indication that early uncharted workings may have been carried out hereabouts.

The Economic Memoir for the District suggests that the Higher and Lower Florida Mine were economic prospects in the past, describing them as being of “*good quality*” in the area. Additionally, the memoir states that the Lower Bugg (Lower Florida Mine) and Rushy Park have been “*worked to outcrop*” in the area. It is of particular note that the majority of the aforementioned shafts are located in and around the outcrop zones of the Upper and Lower Florida Coals or down-dip thereof, positioned as they would be had they served to work either or both of these seams.

In addition to the above, while there is a lack of site specific borehole data to confirm the past mining situation beneath the site, the journal of a historic borehole located some 170 metres to the south of the Subjects (SJ48NE31) records encountering conditions synonymous with abandoned mineworkings in the form of “*cavities*”. Upon perusal thereof, we note that the journal suggests that these conditions were encountered at the horizon interpreted as the Higher and Lower Florida Seams. This borehole is also located within an area where underground mining is not recorded as having taken place, and, as such, is suggestive of unrecorded extraction having taken place in the vicinity of the site.

In view of the foregoing factors, we are consider it likely that shallow workings may have been conducted beneath the Subjects by early uncharted means in some or all of the abovementioned Seams.

8.0 JWH Ross Coal Mining Risk Assessment

The information provided above in Section 6 (Geology) and Section 7 (Past Mining) forms the basis for the current assessment of mining instability risk.

8.1 Definition

“Risk” is a combination of the likelihood of an “occurrence” and the assessment of the severity of the consequences. This can be discussed with reference to a variety of scenarios, i.e., risk to life, risk to property and risk of financial loss.

The magnitude of risk relative to each scenario will depend on a number of factors (such as accessibility to personnel, existence of structures or the interruption of services). In addition the perception of risk will depend on such considerations as the background knowledge of the persons involved and the degree of their involvement.

The assessment of risk to proposed or existing surface development from subsidence effects due to historic mining is a difficult process requiring significant professional judgement and experience. This process is complicated by the fact that the information needed to make an assessment with a high degree of confidence is incomplete and involves uncertainty.

Unless otherwise stated, the JWH Ross risk rating of potential mining subsidence makes the following presumptions that the risk:

- is derived from underground mineral workings (including coal)
- excludes the risk of mine entries (covered separately in our separate section on old shafts and adits)
- relates to typical residential development
- excludes likelihood of occurrence within a timeframe

8.2 Recorded Mine workings

Where “Abandonment” or “Unsigned” mine plan record information exists, the principal contributing factors that influence the assessment of potential future mining subsidence are:

- The thickness of the mineral
 - The inclination of the strata
 - The extraction height of the workings
 - The number of seams worked and any interaction between them
 - The mining technique utilised
 - The extraction ratio
 - Roof conditions
 - The date of the workings
 - The extent of mine workings and the perceived accuracy thereof
 - The layout of the workings in relation to the proposed development
-

- The thickness and nature of overlying rock strata
- The thickness and nature of overlying superficial deposits
- The condition of the working (void, collapsed, partially collapsed)
- The influence of geological faults and igneous intrusions
- Information obtained from boreholes

8.3 Unrecorded Mine Workings

Early mining was somewhat secretive due to lack of legislation regarding the keeping of plan records and rivalry between mining companies. Early mining was also generally at shallow depth in the best and thickest seams.

Under the “Past Mining” section of the Coal Authority Report may be/is contained the sentence *“However you may wish to know that the property is in an area where coal is believed to exist at or close to the surface that may have been worked at some time in the past”*. This is a direct reference to the possible presence of unrecorded extraction, i.e., workings that may have taken place prior to the time that it became a statutory requirement to keep or lodge Abandonment Plans.

An assessment of the potential for shallow unrecorded workings to exist must take into account additional wider ranging information sources and factors, including but not limited to:

- The degree of economic importance of the relevant seams to the early mineral operators
- Local thickness and quality of the seam(s) in question
- Evidence that may be obtained from plan record information in the wider surrounding area, e.g., did the up-dip recorded workings encounter “old waste”?
- The position of known old pit shafts and adits in the locality in relation to geological structure and recorded/unrecorded mining
- Borehole data on a wider basis providing information on the thickness and quality of the seam

8.4 JWH Ross Risk Rating Table

The table that follows below presents a summarised risk assessment of past mining activity (including coal mining) taking into account the information set out in the previous sections of this Report.

Column A represents the likelihood of an abandoned mine working being present (within the uppermost sequence of strata) under or within lateral influencing distance of the site. The 0 – 5 rating below is based on the following:-

- 0 – Underlying strata sequence known to be devoid of workable seams
- 1 – no workable seams recorded or suspected
- 2 – workable seam present, but no workings recorded. Unrecorded extraction unlikely
- 3 – workable seam present - condition unknown
- 4 – workable seam present and unrecorded workings suspected
- 5 – workings recorded or unrecorded workings established

Column B represents the estimated depth range. The 0 – 5 rating is based on the following:-

- 0 – seam/workings outwith critical depth
- 1 – seam/workings at or just within critical depth
- 2 – seam/workings with relatively high ratio of overlying rock strata to extraction height
- 3 – seam/workings with relatively low ratio of overlying rock strata to extraction height
- 4 – seam/workings close to outcrop
- 5 – seam/workings at outcrop

N.B. Critical depth is normally taken to equate to overlying rock strata being 10 times the extraction height, however, this can vary considerably due to the influence of other factors, e.g., the method of extraction.

Column C represents the overall Risk Rating ($C = A \times B$). The 0 – 25 rating is a simplified classification system which may allow the site to be “cleared” with regard to the development or may identify aspects that should be considered in more detail or investigated further. The 0 – 25 rating provides the following general risk category:-

- 0 Negligible
- 1 – 5 Very low
- 6 – 10 Low
- 11 – 15 Moderate
- 16 – 20 High
- 21 – 25 Very High

The implications of the above categories in relation to the current proposals/situation are expanded in the Summary/Conclusions Section at the end of this Report.

Table 1 - Coal Mining Risk Assessment

156463 Sovereign Industrial Estate , Huyton, Liverpool	Column A Likelihood of workings.	Column B Estimated depth range	Column C (A x B) Overall Risk Rating
Assessed area of the Subjects	4	3 - 5	<u>12 - 20</u>

9.0 Future Mining

It is our understanding that there is no underground mining presently taking place under or in proximity to the site. On the basis of current economics, available technology and planning regulations, we consider that the possibility of underground mining can be ruled out in the foreseeable future.

10.0 Old Pit Shafts/Adits

As briefly mentioned in Section 7.0, the Coal Authority Consultants Mining Report obtained for the site area indicates the positions of some 7 No. mine entries located within the boundary of the Subjects or within influencing distance thereof. We have shown by means of Brown circles on the appended Drawing No. 156463/9002, the approximate positions of these shafts together with the reference number assigned to them by the Coal Authority.

We should advise that it was not uncommon to only partially infill such features when mining operations ceased. Subsequently, the filling in the shaft may collapse as the superficial deposits gain entry thereto, often taking the form of a large cone shaped depression, with the shaft itself positioned at its centre. The final diameter of this cone of collapse (zone of influence) is dictated by a number of factors, but predominantly by the nature of the superficial deposits and the depth to rockhead at the individual shaft's locus.

The information provided within the aforementioned Coal Authority Coal Mining Consultants Report indicates that all of the shafts located within the site have at one time been located and treated in the past either by capping, grouting or a combination both. The exception to the foregoing is shaft no. 017 that was proven to rockhead and then found to extend no further and so no remediation was carried out.

Given the works that have been undertaken we would assume that the coordinated positions of the shafts as provided by the Coal Authority will be reasonably accurate. We cannot however, comment on the efficacy of these works or present condition the shaft caps and any infilling.

In order to make more specific comment on the possibility of movement arising from a possible collapse of any of the mine entries referenced above, we would recommend that, in the first instance, given the anticipated shallow depth to rockhead excavations be undertaken to expose the shaft caps and inspect their current condition, dimensions and orientation.

Thereafter, and in normal course of events, we would recommend that any future structural development design takes cognisance of these positions and are located outwith the zone of instability in order to avoid any geotechnical issues such as differential settlement.

11.0 Mine Gas Emissions

The Coal Authority have confirmed that they have no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

12.0 Conclusions/Recommendations

Our overall past mining risk assessment places the site of the Subjects as outlined in red on appended Drawing No. 156463/9002, in the category of Moderate to High. In relation to the current proposal this may be reasonably interpreted as follows;

We should advise that the upward transmission, nature and extent of subsidence movement is directly related, amongst other factors, to the extraction height, inclination of the strata, method of mining, percentage extraction, degree of natural consolidation of the wastes and the thickness, nature and bulking factor of the overlying deposits.

Our interpretation of the geological structure underlying the Subjects suggests that the Earthly Delf, Upper and Lower Florida Mine, Cheshire Mine, Tenlands Mine, Bastians Mine, Prescott Main Delf, Burgy Mine and Rushy Park horizons will all be present beneath the Subjects. All of the

aforementioned horizons are anticipated to be present at shallow depth to the southeast of their respective outcrop positions as indicated on appended Drawing No 156463/9002.

While we have uncovered no plan record of extraction of the aforementioned seams beneath the Subjects, anecdotal evidence gleaned from the Economic Memoir for the District suggests that a number of the seams referenced above were at one time considered an economic prospect and often worked at shallow depth up to their corresponding outcrop positions.

In addition to the above, the Coal Authority Consultants Mining Report indicates the position of some 7 No. mine entries within the Site or within influencing distance thereof. The foregoing is suggestive that extensive mining operations may have been conducted hereabouts at some time in the past. This is further evidenced by apparent unrecorded workings encountered in the horizon interpreted as the Upper and Lower Florida Mine in a borehole sunk some 170 metres south of the Subjects.

After taking into account all the information presently available to us, and in the absence of site specific borehole information to the contrary, we consider it likely that unrecorded extraction of the abovementioned seams may have taken place beneath the Subjects. Where workings are present, we are apprehensive that there may be an insufficient thickness of superincumbent rock intervening between the roof of any workings and the base of the superficial deposits to preclude the effects of belated mineral subsidence from manifesting at ground level.

In line with the foregoing, we are of the opinion that Subjects outlined in red on appended Drawing No. 156463/9002 must be considered suspect from a mineral stability aspect and would recommend further investigation by drilling be undertaken at the site in order to:

- Determine the depth and nature of superficial deposits
- Establish the geological structure beneath the subjects
- Establish the depth to and condition of the shallow minerals where they underlie the site

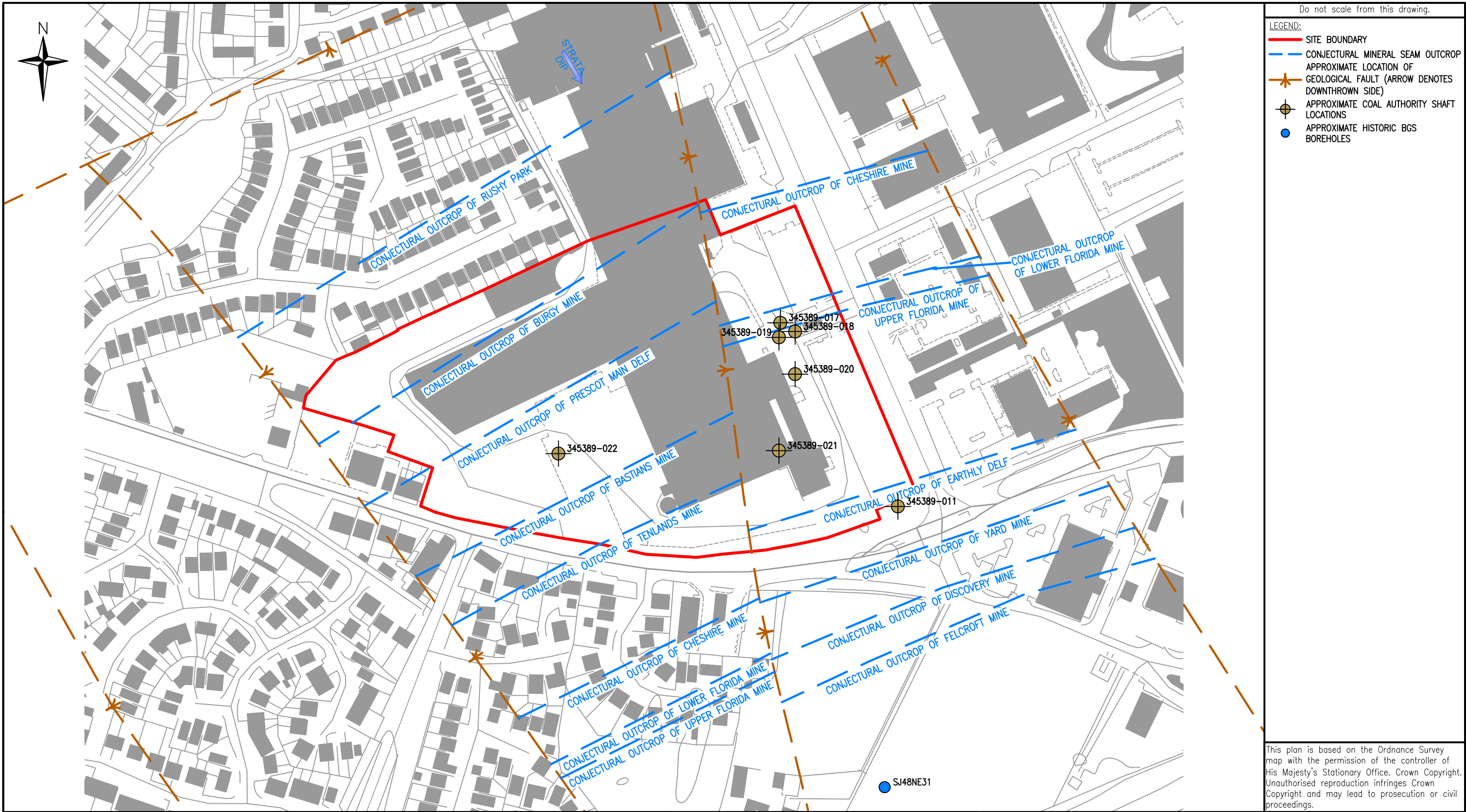
N.B. for mine entries see section 10.0

Appendix 1

Drawing No. 156463/9001 – Site Location Plan

Appendix 2

Drawing No. 156463/9002 – Composite Site Plan



- Do not scale from this drawing.
- LEGEND:
- SITE BOUNDARY
 - CONJECTURAL MINERAL SEAM OUTCROP
 - APPROXIMATE LOCATION OF GEOLOGICAL FAULT (ARROW DENOTES DOWNTHROWN SIDE)
 - APPROXIMATE COAL AUTHORITY SHAFT LOCATIONS
 - APPROXIMATE HISTORIC BGS BOREHOLES

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										Drawing No.: 156463/9002		Revision: —
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Appendix 3

**Coal Authority Consultants Coal Mining Report dated 24th July 2023, ref:
51003368666001**



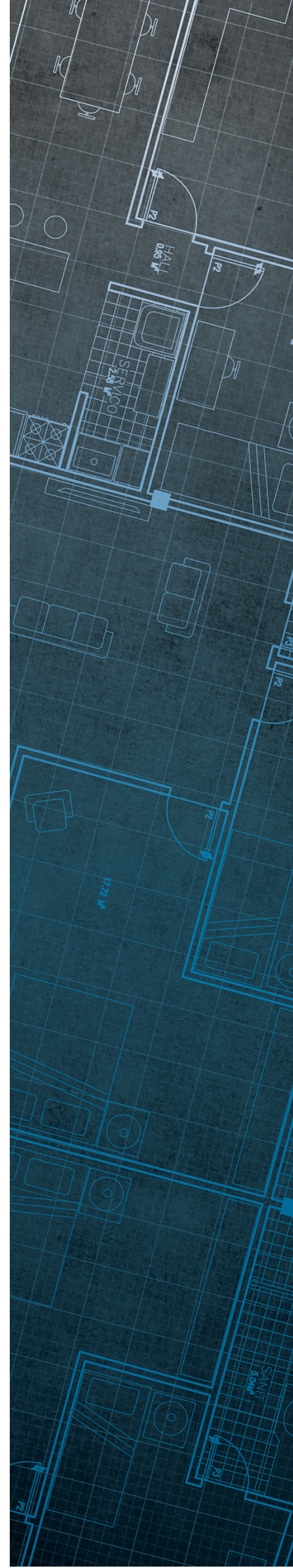
The Coal
Authority

Consultants Coal Mining Report

345708, 389493,
Merseyside

Date of enquiry: 24 July 2023
Date enquiry received: 24 July 2023
Issue date: 24 July 2023

Our reference: 51003368666001
Your reference: GS-PSG-JPZ-FVB-4KO



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

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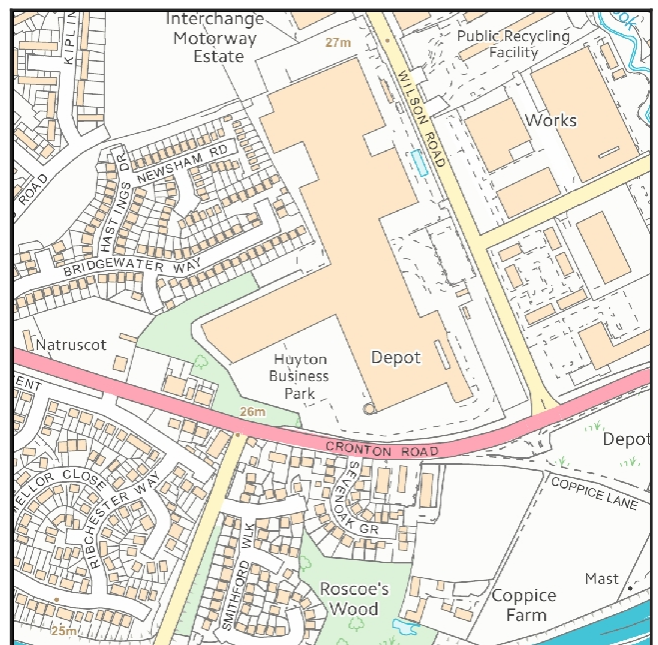
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	345389-003	345449 389579	This shaft was located during development and was grouted and capped in 1994 by C.H. Stevenson.	Coal	
Shaft	345389-011	345845 389425		Coal	
Shaft	345389-012	345599 389346		Coal	
Shaft	345389-013	345666 389335	A search was carried out for this shaft during site investigations in 2004. An area measuring 5 metres square around the plotted position of the shaft was excavated down to natural ground and no evidence of the feature was found. It was concluded that the shaft was not located within the area of search. Additionally each proposed plot adjacent to the shaft was probe drilled by Strata Grout Ltd and again no evidence of the shaft was found. This information was taken from a report compiled by Robert E Fry & Associates on behalf of the site developers Jensen Developments Ltd	Coal	
Shaft	345389-017	345765 389550	This shaft was located during a site investigation in 1976 The shaft was then excavated to rockhead where it was reported to terminate.	Coal	
Shaft	345389-018	345775 389544	This shaft was located during a site investigation in 1976 the shaft was then capped with a 4m square RC cap.	Coal	
Shaft	345389-019	345764 389540	This shaft was located during a site investigation in 1976 the shaft was then capped with a 7m square RC cap.	Coal	
Shaft	345389-020	345775 389515	This shaft was located during a site investigation in 1976 the shaft was grouted and capped with a 6m square RC cap.	Coal	
Shaft	345389-021	345764 389463	This shaft was located during a site investigation in 1976. The shaft was then grouted and capped with a 6m square RC cap.	Coal	
Shaft	345389-022	345614 389461	This shaft was located due to a collapse in Feb 1987. The shaft was grouted and capped with a 4.4m square RC cap 2.6m below ground level.	Coal	
Shaft	345389-025	345612 389375	This shaft was located during an investigation carried out by R E Fry @ Associates It was found to be filled. The shaft was subsequently capped with a 5.0m x 5.0m x 450mm reinforced concrete cap 6.0m below ground level.	Coal	
Shaft	345389-026	345595 389319	This shaft was located during an investigation carried out by R E Fry @ Associates. It was found to have been filled. The shaft was then capped with a 8.0m x 8.0m x 600mm reinforced concrete cap 2.5m below ground level.	Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

16820	570	PO0
-------	-----	-----

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
HAIGH YARD	Coal	Yes	Within	N/A	58
HIGHER FLORIDA	Coal	Yes	Within	N/A	261
HIGHER PIGEON HOUSE (PIGEON HOUSE)	Coal	Yes	44.1	North	81
LOWER FLORIDA	Coal	Yes	Within	N/A	81
PLODDER	Coal	Yes	Within	N/A	59
RAMS	Coal	Yes	Within	N/A	78
ST. HELENS YARD	Coal	Yes	Within	N/A	79
TRENCHBONE	Coal	Yes	Within	N/A	62
WIGAN FOUR FEET	Coal	Yes	Within	N/A	62

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
Within	N/A
Within	N/A
46.1	South
Within	N/A
Within	N/A
Within	N/A
27.5	North-East

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

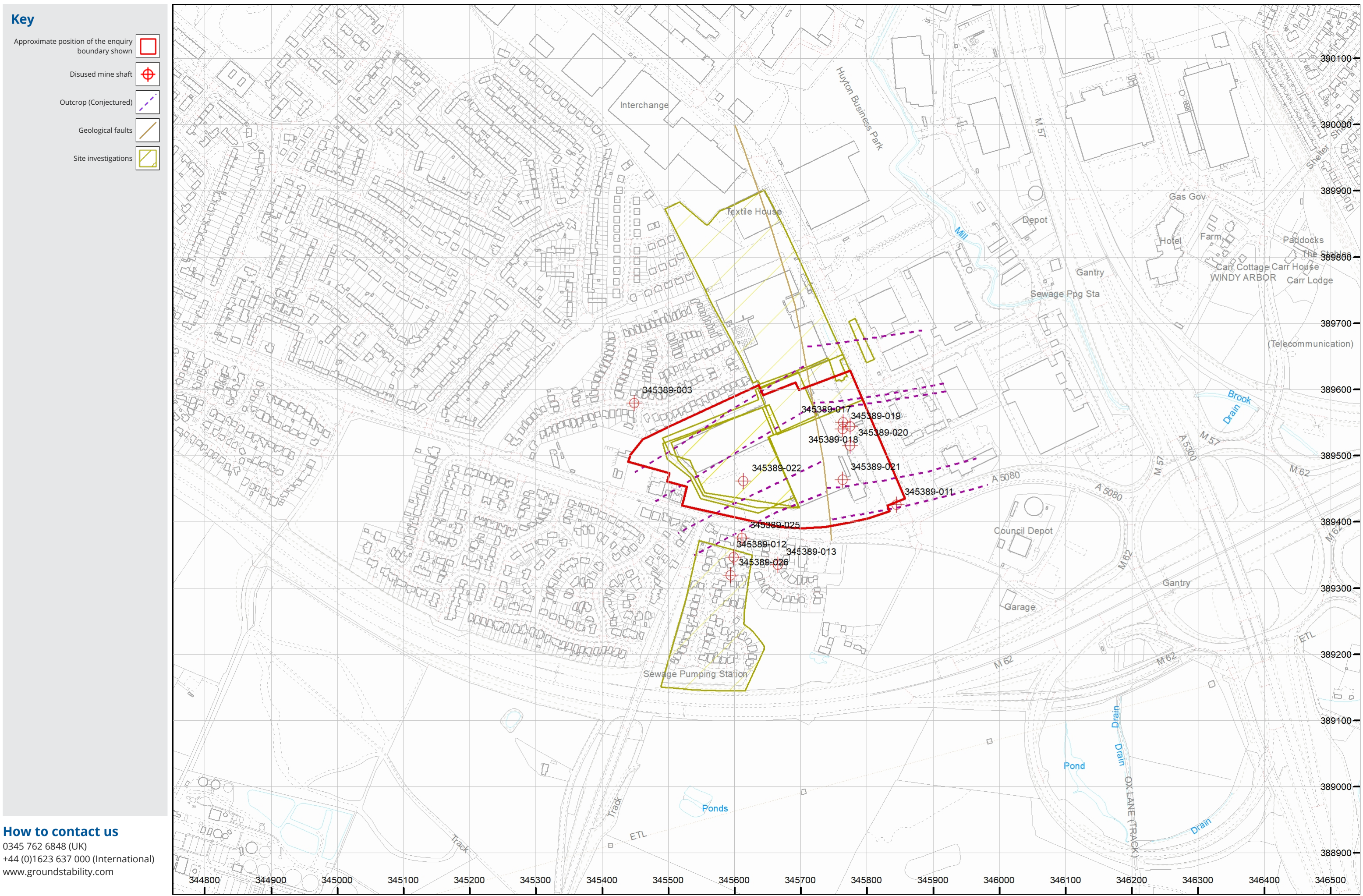
Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



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