Our Ref: 20-380.01L
Your Ref:

Alex Thomas
Vistry Partnerships Yorkshire
Strategic Business Centre
Thunderhead Ridge
Glasshoughton
West Yorkshire
WF10 4UA

Solum House
Unit 1 Elliott Court
St John's Road
Meadowfield
Durham
DH7 8PN

12th June 2020

Dear Alex,

RE: Shallow Coal Mining Risk Assessment & Coal Recovery Report – Land off High Street, Shafton, Barnsley, S72 8NG

Further to your recent request, please find below our evaluation on the likelihood of shallow coal workings being present below the above site. I have based my assessment on the following data sources:

- BGS Published Geology, Barnsley, 1:50,000 Series (Solid & Drift Edition) Map Sheet 87
- Coal Authority Consultants Coal Mining Report 51002277836001 (attached)
- Digital copy of geological plan (attached)
- Copy of shaft recorded for Hodroyd Colliery (attached)

Site Geology

A summary of site geology is shown in Table 1 below:

Table 1

MADE GROUND / FILL	Comments
Type:	No Artificial Ground recorded on published geological plans
Thickness:	~
DRIFT	**Comments**
Type:	Published records indicate the site in an area free from drift (i.e., superficial deposits are thin or absent)
Thickness:	Superficial deposits are felt to be thin, as solid outcrop shown on site.
SOLID	**Comments**
Type:	Carboniferous Middle Coal Measures. Sandstone outcrop to south and mudstone to north.
Remarks:	Cyclical alternations of Sandstone, Mudrocks (siltstone, mudstone & shale), non-productive Coal Seams and Seat Earths/ Fire Clays deposited during the Carboniferous period.
Structural Faults or Abnormal Features:	According to published geological plans there are no faults or abnormal features within influencing distance to the site.

RE: Shallow Coal Mining Risk Assessment & Coal Recovery Report – Land off High Street, Shafton, Barnsley, S72 8NG (Cont'd)

Shallow Coal Mining Assessment

A summary of recorded and inferred mining below the site is discussed below:

The shallowest coal seam below the site is recorded as the Shafton coal seam, which outcrops around 400m to the SW, trending NE i.e., below the site. According to shaft details for Hodroyd Colliery, located c. 1500m to the east, the Shafton seam is 1.45m thick in this region. Interpolation of outcrop patterns and seam dips estimate the Shafton seam to be at least 50m to 60m below the site.

According to the Coal Authority (CA), the site is recorded within a coal mining reporting area although the site is not recorded within a defined 'Development High Risk Area' or Area of Past / Probable shallow Coal Workings.

Therefore, a Consultants Coal Mining report was procured from the CA, this report records the shallowest recorded coal workings below the site are within the Barnsley Coal c.474m below ground level, last worked in 1935. The report does not record the potential for probable unrecorded shallow coal workings or spine roads to be present below the site.

In addition, there are records of three former mine entries within 100m of the site with the closest entry recorded to be c.12.5m from the site's extreme northern boundary, this is shown to lie around c.34.5m from the nearest proposed new dwelling, as shown on the Proposed Site Layout drawing 8012-EA-A-S002 Rev K provided.

Although the degree of accuracy on the shaft position is not known (also recorded as departure), given that the site is shown to lie in an area of thin or absent superficial drift and there are no planned structures within 22m of the sites boundary, the risk of collapse of the shaft affecting proposed new structures is felt to represent a negligible risk to this site.

In addition, as the shaft is recorded off-site with no recorded superficial drift present, the risk of any mine gas migration from the shaft affecting the site is felt to be negligible.

Coal Recovery Assessment

The site lies in the "active coalfield" as defined by the Coal Authority.

From the above review it can be seen that there are no shallow coal seams present below the site and it is our opinion that any excavations will not encounter any coal seams and therefore it will not be viable to remove coal from below the site.

RE: Shallow Coal Mining Risk Assessment & Coal Recovery Report – Land off High Street, Shafton, Barnsley, S72 8NG (Cont'd)

Conclusions

From the above review, it can be seen that the shallowest coal seam below the site is recorded as the Shafton seam, which has been calculated to lie at a depth in excess of 50m below the site.

A former abandoned shaft is shown to lie c. 12.5m to the north of the site. Given that high rockhead is noted on published geological maps and the closest planned new structures are shown to lie at least 22m from the sites northern boundary, the risk of potential influence from the recorded adjacent mine entry is felt to be negligible.

It is therefore concluded that the site represents a negligible risk in terms of shallow coal workings and mine entry influence.

We trust the above review is satisfactory, however, if you require any further information or clarification, please let us know.

Yours sincerely,

.....

For and on behalf of ARC Environmental Limited
Darren McGrath MIEnvSc FGS Tech IOSH
Director

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Registered in England No. 05539784

The Coal Authority

Consultants

Coal Mining Report

Land Off High Street
Shafton
Barnsley
S72 8NG

Date of enquiry:	**11 June 2020**
Date enquiry received:	**11 June 2020**
Issue date:	**11 June 2020**
Our reference:	**51002277836001**
Your reference:	**20-380**



Consultants

Coal Mining Report

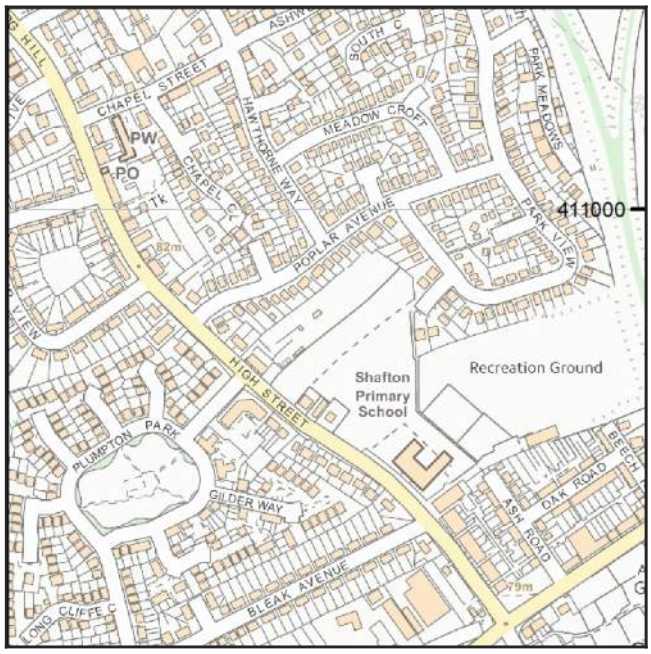
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Arc Environmental Ltd

Enquiry address

Land Off High Street
Shafton
Barnsley
S72 8NG



Approximate position of property

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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	STANLEY MAIN	Coal	65C9	326	North-West	3.9	North-East	74	1955
unnamed	STANLEY MAIN	Coal	65DP	327	North-West	5.1	East	80	1953
unnamed	WINTER	Coal	65C7	371	South	7.1	East	82	1963
unnamed	BARNSLEY	Coal	65CF	422	West	5.6	East	273	1904
unnamed	BARNSLEY	Coal	65DY	427	North-East	4.1	North-East	273	1909
unnamed	BARNSLEY	Coal	65DW	430	North-West	4.1	North-East	273	1909
unnamed	BARNSLEY	Coal	65E0	432	North	4.1	North-East	273	1909
unnamed	BARNSLEY	Coal	65DX	436	North-West	4.1	North-East	273	1909
unnamed	BARNSLEY	Coal	65CE	474	Beneath Property	8.7	East	283	1935
unnamed	TOP HAIGH MOOR	Coal	65CI	483	Beneath Property	4.4	North-East	117	1946
unnamed	TOP HAIGH MOOR	Coal	65E5	490	North	5.3	North-East	130	1947
unnamed	LIDGETT	Coal	65CL	511	North-West	4.1	North	76	1959
unnamed	LIDGETT	Coal	65E6	514	North-West	5.3	East	100	1961
unnamed	TOP HAIGH MOOR	Coal	65CJ	531	South	6.6	East	122	1960
unnamed	LOW BARNSLEY	Coal	65E3	550	East	5.2	North-East	168	1931

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

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Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	439410-002	439410 410974		Coal	
Shaft	439410-003	439444 410809		Coal	
Shaft	439410-006	439384 410731		Coal	
Shaft	439410-007	439267 410800	was found filled and subsequently drilled grouted and capped (6.0m x 6.0m x 0.5m reinforced concrete) by JPA Consultants for Ben Bailey Homes Ltd in 2001. The shaft is capped at rockhead approx. 2.0m bgl	Coal	

Abandoned mine plan catalogue numbers

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

NE526	NE520	M135
NE522	6153	M136
8257	13477	PO0

Our records show we have more plans than those shown above which could affect the enquiry boundary.

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas 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
15.9	South-West

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.

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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 in an area where notices to withdraw support were given in 1946 and 1989.

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.

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Section 4 – Further information

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

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

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.

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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.

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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.

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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.

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The Coal Authority

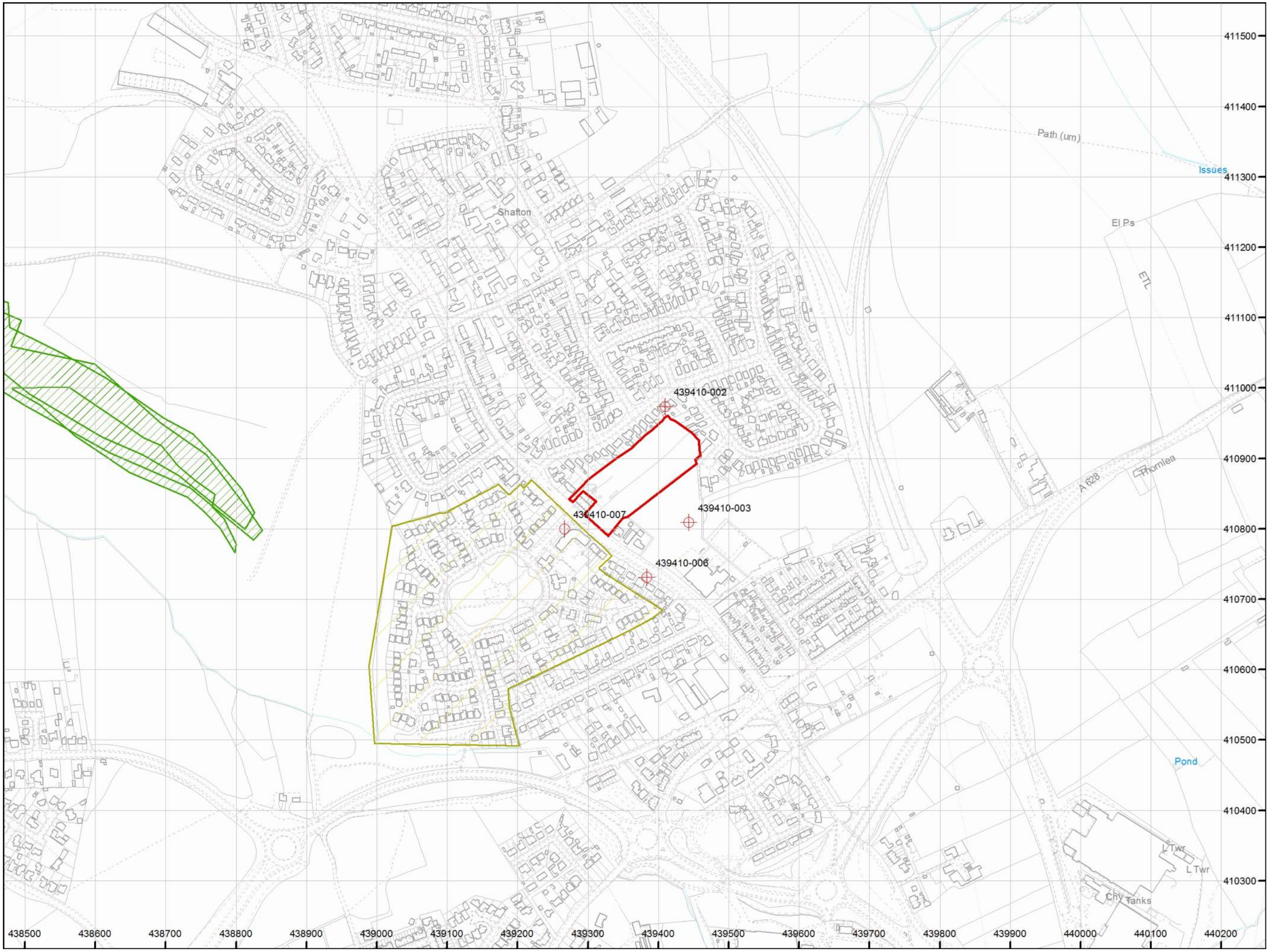
Summary of findings

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

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Unlicensed opencast site
- Site investigations



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147m
Source: USGS
Source: NASA, NGA, USGS
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
esri

SE 41 SW/12 NE 87/51

(B11857) Wt. 17862—S154—5,000 12/58 Sp. 1064 O.A.

SECTION OF Hodroyd Colliery **at** Brierley. 200 yds. S. of Br[illegible] Church. 182·88

Maps: One-inch 87 106·98 Six-inch 263 SW. County Yorkshire.

Height above O.D. 351 ft. Latitude 53° 35′ 30″N Longitude 1° 22′ 51″W.

Communicated by Sec. Strata Yks. Clfld 1927 p. 176 Date of Sinking 1910-12

Made by Dip of Strata 1 in 17 N 79 E

Summary of published record:-

		Thickness.			Depth from Surface.		
	Surface strata (Drift)	3·20	10	6	3·20	10	6
Brierley or Hodroyd Rock	Red sand rock with marl bands in [illegible]	11·20	36	9	14·40	47	3
	Coal measures with thin coals + rock bands to						
	Shafton Coal	1·45	4	9	196·04	643	2
	Stone bind or sparvin	8·03	26	4	204·06	669	6
Roysto[illegible] or Top of Marsden Rock	Grey rock (bottom of shaft)	1·52	5	–	205·59	674	6

Details of sandstone bands:-

Grey rock	3·05 10′0″	to 85′9″	26·14
Rock	3·45 11′4″	to 199′5″	60·78
Rock	2·90 9′6″	to 446′4″	136·04
Rock	5·10 16′9″	to 470′2″	143·31
Grey rock	4·98 16′4″	to 520′2″	158·55
Rock	5·16 16′11″	to 563′10″	171·86
Rock	6·20 20′4″	to 636′1″	193·88

60·96