Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

Prepared by:

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SLR Project No.: 405.065382.00001

Client Reference No: FS2098

1 August 2024

Revision: 01

Basis of Report

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1.0 Introduction

1.1 Appointment

SLR Consulting Limited (SLR) was commissioned by Motor Fuel Group Ltd (MFG), to undertake a Coal Mining Risk Assessment (CMRA) of FS2098, Morrisons Barnsley Service Station, Barnsley, S70 1LQ (the site) in support of a planning application for proposed re-development for continued commercial use. A CMRA has been requested to assess potential historical mining activities that may impact the proposed development.

The proposed development comprises an application split across two separate development areas. These are:

- within the existing filling station to the east, hereafter referred to as 'the PFS site'; and
- within the Morrisons superstore car park to the west, hereafter referred to as 'the car park site'.

The location of the proposed development is shown on Drawing 01. Each site boundary is shown in red on Drawing 14314-2098-BP - Block Plan included within Appendix A, which also provides detail on the existing layout of the two development areas.

1.2 Proposed Development

The planning application, as requested by the planning authority, is required to be supported by a CMRA to address potential risks to the proposed development associated with historical mining. The proposed development, in outline, will comprise:

- Removal of existing above ground tank (LPG) (PFS site).
- Construction of a single storey shop building extension (61sq m) to the north of the existing filling station shop building (PFS site).
- Construction of eight EV charging bays and GRP cabinet, GRP LV enclosure and GRP substation enclosure (car park site).

The existing forecourt, fuel storage and dispensing infrastructure will be retained within the PFS site.

This assessment is based on the assumption that a standard shallow foundation solution (strip foundation/pad) will be suitable for the shop extension and substations. The construction of the EV bays and electrical infrastructure are unlikely to require deep foundations and are considered predominantly surface works.

Drawing 14314-2098-201 - Proposed Site Layout, presented in Appendix B, shows the proposed development layout.

1.3 Background

The proposed development is located within a Coal Mining Reporting Area, indicating it is underlain by Carboniferous coal bearing strata (Coal Measures) and thus the Coal Authority (CA) is likely to require that a CMRA is undertaken. The proposed development is also in an area classed as a Development High Risk Area (DHRA), which is defined as a coal mine reporting area which contains one or more recorded coal mining features which have potential for instability or a degree of risk to the surface from the legacy of coal mining operations. This potential risk could arise from a combination of features which could include:

- mine entries;
- shallow coal workings (recorded and probable);

- recorded coal mining related hazards;
- recorded gas sites; and
- fissures and breaklines and previous surface mining sites.

The proposed development comprises an area of land to the south of A628 West Way, Barnsley. The proposed development is located within an urban area. The surrounding topography is generally flat, with a gentle slope down to the north. The approximate elevation for the proposed development is 110mAOD.

The proposed development, split across two separate areas, is bound to the west by the Morrisons Superstore; the A628 is located to the north with commercial properties to the east and south.

A review of historical maps indicates the proposed development site and surrounding area were occupied by housing from the mid-19th century with a foundry located from 100m to the west. Later maps depict industrial activities locally from 1929 later returning to residential use.

To complete this CMRA, a Coal Authority Consultants Report was reviewed along with geological information from the British Geological Survey[1] (BGS), historical mapping and relevant mining memoirs. A review of available BGS borehole records was carried out which are provided in Appendix C. The Coal Authority Consultants Report is provided in Appendix D.

This report provides a review of the likelihood of mining activity (including traditional underground and opencast mining, both recorded and potentially unrecorded) which may have taken place beneath the proposed development.

The geological setting and mining framework of each development area and the surrounding area are described in Section 2.0, which is followed by the Mining Assessment in Section 3.0. Conclusions are presented in Section 4.0.

1 BGS, 2005. SE30NW. Solid and Drift. 1:10,000 Series

2.0 Geological and Hydrogeological Setting

2.1 Geology

Information on geology and mining has been obtained from the BGS online map viewer, BGS borehole logs and published geological maps of the site and surrounding area. There is no borehole information available for the site itself.

2.1.1 Superficial Deposits

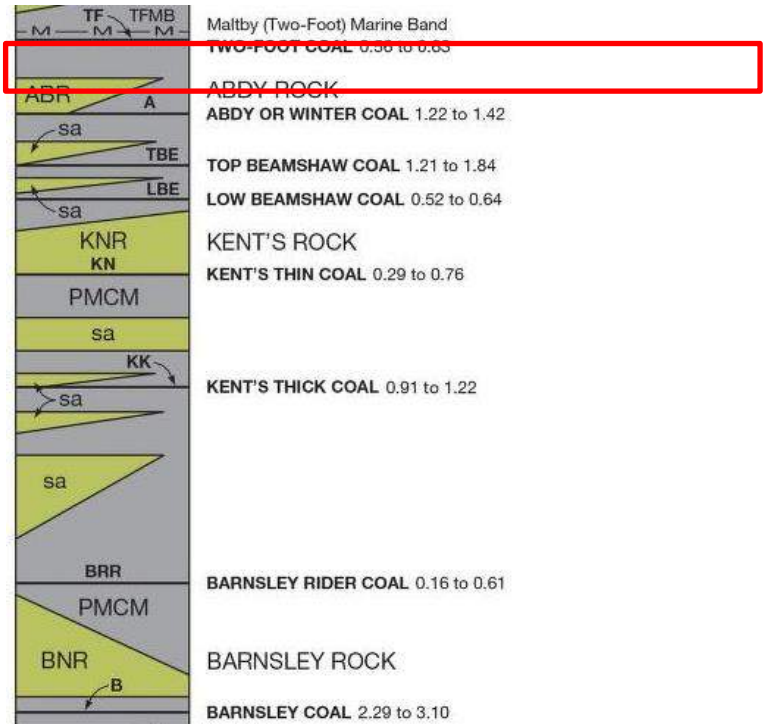
The geological mapping (BGS) indicates that there are no superficial deposits within or surrounding the site boundaries. Information from boreholes to the east indicates that made ground is present sporadically to depths of approximately 5m below surface, overlying a thin band of clay inferred to be weathered bedrock. Borehole logs obtained from the BGS are provided in Appendix C.

2.1.2 Solid Geology

The proposed development is located overlying an extensive Carboniferous basin; within a thick sequence of Westphalian age Coal Measures comprising the Pennine Middle Coal Measures (MCM). Each site is underlain by strata of the MCM, comprising mainly cyclic sequences of sandstone, siltstone and mudstone with bands of coal and marine fossils. The geology recorded by the BGS indicates strata with a relatively gentle dip to the east locally (approximately 5^{o}).

The shallowest coal identified in the sequence below the site is the Abdy or Winter Coal, which is projected to subcrop beneath the western boundary of the car park site. The Two-Foot coal subcrops immediately east of the PFS site. A number of underlying coals including the Top Beamshaw Coal, Low Beamshaw Coal and the Kent Thin Coal are also identified from geological maps. An extract of the BGS Map[1] is provided in Figure 2-1.

Figure 2-1: 1:10,000 SE30NW Extract[1] (Proposed Development Location in Red)



2.2 Borehole Records

2.2.1 BGS Borehole Logs

BGS borehole records provide an overview of geology in the surrounding area. A summary of nearby borehole records is presented in Table 2-1 below and provided in full in Appendix C.

Table 2-1: BGS Borehole Records

Borehole Reference	Distance to Site and Direction	Borehole Depth (m bgl)	Recorded Geology and Depth Range (m bgl)
SE30NW611	44m NW	17.0	Overburden to 1.2m onto brown clay to 4.8m Bedrock of mudstone from 4.8m, with coal between 10.40 to 11.60m. No workings recorded.
SE30NW609	112m SE	15.5	Overburden to 1.2m onto brown clay to 3.9m. Bedrock of mudstone from 3.9m, with coal between 8.0 to 9.2m. No workings recorded.

Borehole logs within the surrounding area, available on the BGS online viewer, confirm the presence of likely made ground soils recorded as overburden. Despite no superficial soils recorded by the BGS, a consistent layer of brown clay overlying shallow bedrock is observed at thicknesses between 2.7m and 3.6m.

The two borehole logs outlined in Table 2-1 record the presence of an intact shallow coal seam within mudstone units, inferred to represent the Two-Foot Coal recorded to subcrop at the eastern boundary of the PFS site. No workings were recorded in the two boreholes.

Given the proximity of the borehole logs to the site and the relatively flat topography locally, the recorded geology is considered to be relatively consistent and representative of ground conditions beneath both development areas, in the absence of site-specific borehole information.

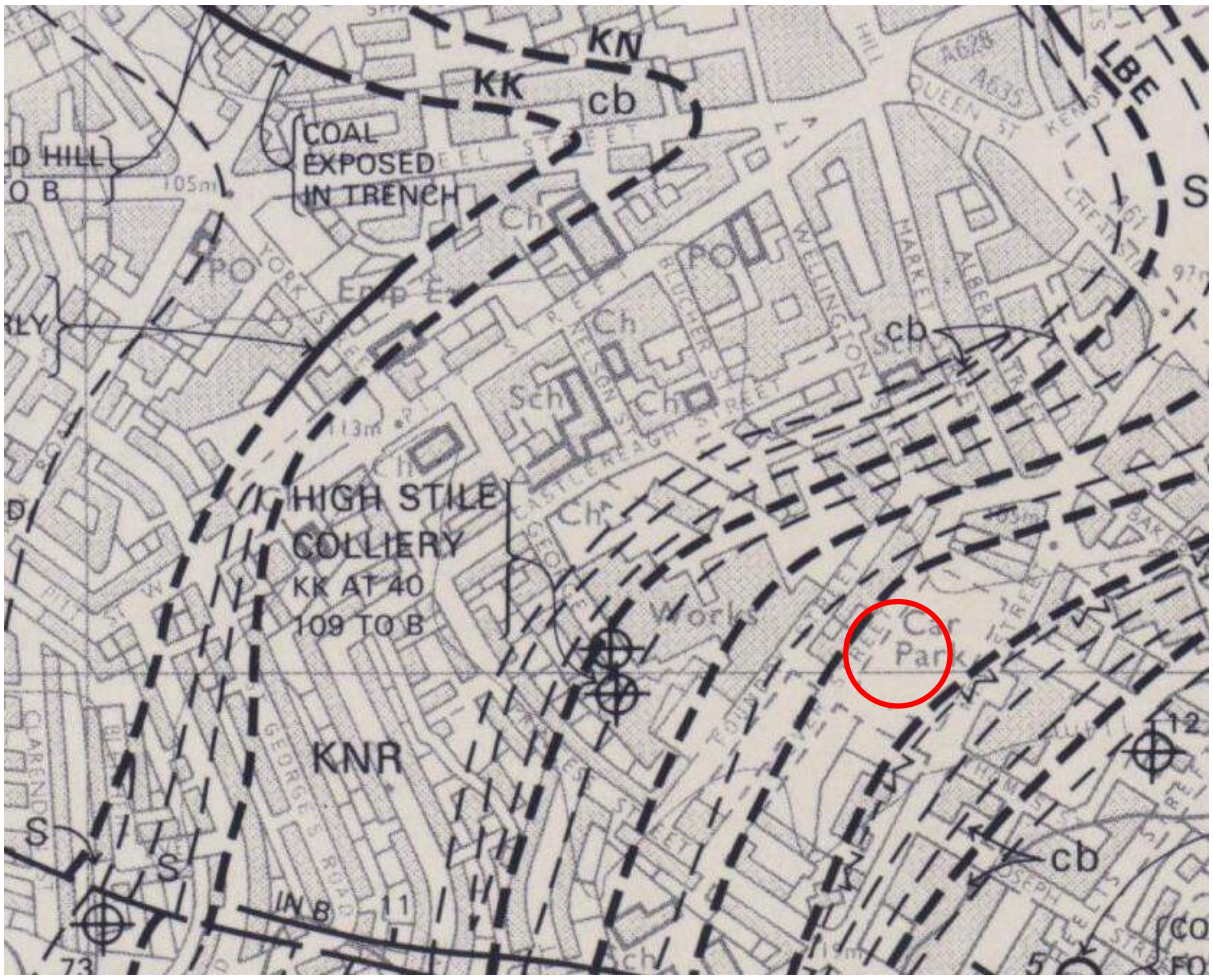
A number of boreholes logs greater than 500m from the proposed development record the shallow bedrock stratigraphy to depths of around 30m, and no logs have identified evidence of mine workings i.e. the coal seams are recorded as intact.

2.3 Coal Mining History

The surrounding area lies within the Yorkshire Coalfield and there is a long history of coal exploitation regionally. A number of economic coal seams are present in the strata locally, with workings present dating from the mid-19th century predominantly of the Barnsley Coal. There is limited evidence of coal mine legacy features noted in the surrounding area, such as spoil tips or large excavations. However, two shafts are located from 60m west of the car park site and a single shaft 120m east of the PFS site. The two shafts are believed to relate to High Stile Colliery, as referenced on published geological maps[2] and Figure 2-2. The colliery (from public records) was worked from 1870 to 1878, with likely extraction of the Kent Coal (Thick) and underlying Barnsley Coal.

[2] BGS, 1983. SE30NW. Solid and Drift. 1:10,000 Series

Figure 2-2: BGS 1:10,000 1983 Edition Extract (Proposed Development in Red)



The shallowest coal seam present below the site is the Abdy or Winter Coal, which is recorded to subcrop beneath the western boundary of the car park site, orientated northeast to southwest and dipping shallowly to the east.

The Two Foot Coal is projected to subcrop at the eastern boundary of the PFS site, and given the dip in stratigraphy to the east is not projected to occur beneath either development area.

Below the Abdy/Winter Coal, a number of seams are present including the Top and Low Beamshaw Coal, Kent (Thin) and Kent (Thick) Coal. The Barnsley Coal, mined throughout the surrounding area is projected to subcrop >1km to the west and occur at depths >100m beneath the site. The mining memoir for the Yorkshire Coalfield[3] provides limited information regarding the worked extent of the Abdy/Winter Coal and Top and Low Beamshaw Coal seams locally, however the memoir refers to the Winter Coal as good house coal and can be used for coking. Furthermore, references are included to the Beamshaw coal as being of very poor quality and occasionally used as engine coal.

2.4 Coal Mining Report

SLR obtained a Coal Mining Report from the Coal Authority, see report reference 51003439994001 (Appendix D). Key sections of the Coal Mining Report are reproduced below.

[3] HMSO, London, 1878. The Geology of the Yorkshire Coalfield.

2.4.1 Mining Activity and Geology

Past Underground Mining – Recorded Workings

Table 2-2: Past Underground Mining

Colliery	Coal Seam	Coal Authority Reference	Depth (mbgl)	Direction of working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
Unnamed	Barnsley	64J0	129	Southeast	5.0	East	274	1852
Unnamed	Barnsley	64SM	132	Southeast	6.2	East	188	1853

Probable Underground Mining – Unrecorded Workings

The property is considered to have probable unrecorded shallow workings (<30m depth).

Mine entries

There are no recorded mine entries within 50 metres of the boundary of the property. There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

Outcrops

Three recorded within 50m of the enquiry boundary.

Table 2-3: Coal Outcrops

Seam Name	Seam Workable	Distance to Outcrop (m)	Direction to Outcrop	Outcrop Bearing (º)
Two-Foot	Yes	0	-	42
Winter	Yes	9.1	West	21
Winter	Yes	7.4	North-west	35

Opencast Coal Mining

None recorded within 500m of the enquiry boundary.

Mine Gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property nor 500m from the enquiry boundary.

2.5 Geology and Mining Summary

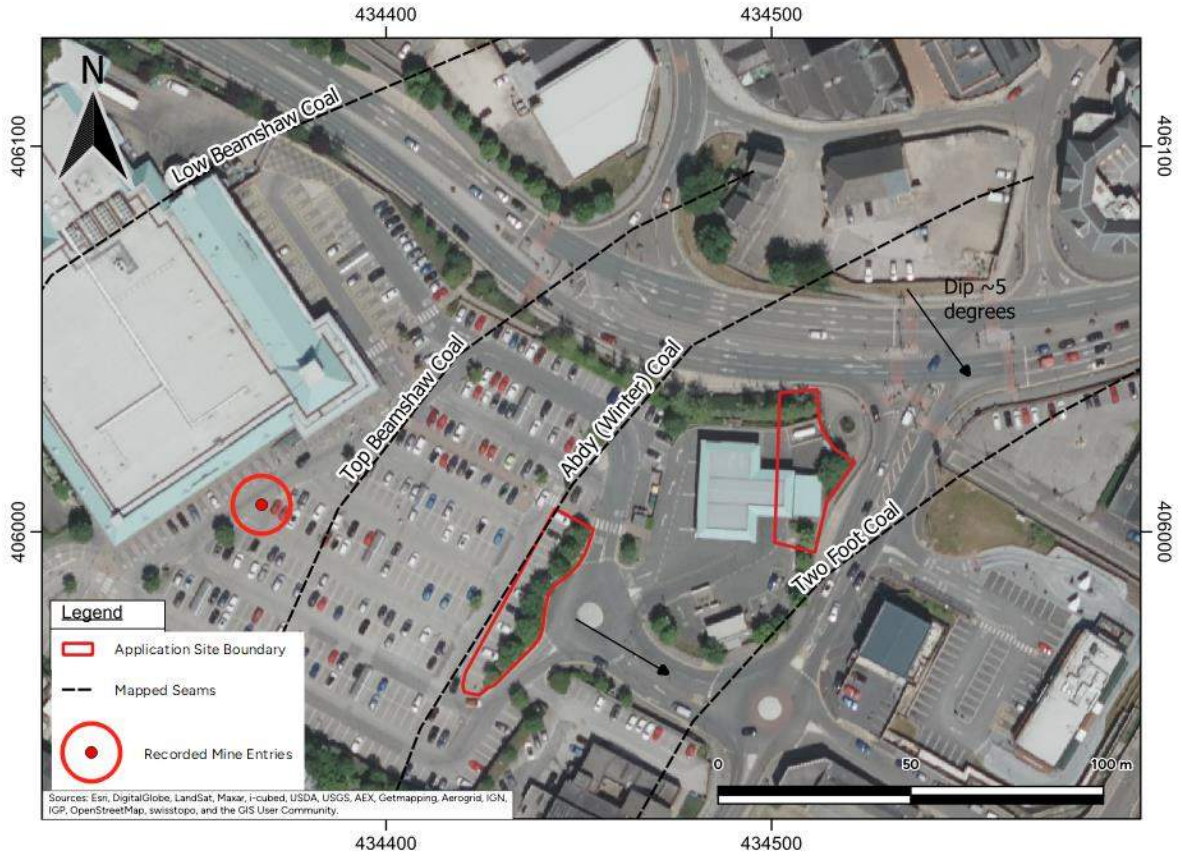
The site is located in the historic urban centre of Barnsley and comprises a single storey shop extension, new EV charging bays and a new substation enclosure. The ground conditions likely comprise shallow made ground onto a locally variable thickness of unrecorded superficial clayey soils overlying bedrock, as determined from BGS borehole logs located to the east of the site. The thickness of unrecorded superficial soils is approximately 3m, however this may vary laterally and in the absence of site-specific borehole information estimated superficial thickness is 2 to 4m. Therefore, depth to bedrock is assumed to be 3 to 5m below ground level.

The local coal seam stratigraphy and mapping indicate the Abdy/Winter Coal subcrops at the western boundary of the car park site, dipping shallowly to the southeast towards the PFS site. A number of further seams are recorded to subcrop to the west including the Top and Low Beamshaw coals which likely occur at shallow depths beneath the site based on a stratigraphic dip of 5°. The recorded seam subcrop locations are presented in context with the development area boundaries on Figure 2-3.

The Coal Mining Report records no workings of the shallow seams discussed above, and hence any workings if present would be considered unrecorded. There are deeper recorded workings of the Barnsley Coal present locally, however these likely occur at depths greater than 100m, beyond any potential influence at surface level.

Two shafts are recorded from 60m to the east, likely associated with the historical foundry site and worked the Barnsley Coal locally. The two shafts may be a source of local unrecorded workings of the seams above the Barnsley Coal, in particular the Kent Thin and Thick Coals.

Figure 2-3: Recorded Coal Seam Locations



3.0 Coal Mining Risk Assessment

For the purposes of this mining risk assessment all available sources, including CA reports, borehole records and other publicly available information, have been assessed and assigned a relative degree of risk to highlight potential areas of concern based on identified features and potential future actions.

3.1 Risk Assessment

Table 3-1 presents the framework used to complete the assessment.

Table 3-1: Risk Assessment Framework

Risk Status	Action
No Risk	Identified feature(s) not considered to pose any risk to proposed development. No further action required.
Low Risk	Identified feature(s) are unlikely to pose a risk to any future proposed development although further action may be required, such as intrusive site investigation.
Medium Risk	Identified feature(s) may present a risk to any future proposed development and further actions are likely to be required including, but not limited to, intrusive site investigation and potentially ground improvement works.
High Risk	Identified feature(s) present a risk to any future proposed development and further actions are required including, but not limited to, intrusive site investigation and potentially ground improvement works.

Where mining is identified at less than 20m depth (approximately) from surface, this should be considered as a high risk for any potential future development. If the mining has taken place 20 to 30m from surface a medium risk and in excess of 30m from surface a low risk.

Depth to workings is not the only factor to consider. The type of coal mining technique used, the amount and type of rock cover, the geological setting and dip of the coal strata are all significant factors which must also be considered. Finally, the most important consideration is the type of proposed end use, which will dictate the risk associated with historical mine workings. This assessment is based on the proposed development of a single storey shop extension, EV charging bays and substation, with the shop extension and substation likely to require a shallow foundation solution.

Three shallow coal seams are projected to occur at depths of less than 20m beneath the proposed development, including the Abdy/Winter Coal, Top Beamshaw Coal and Low Beamshaw Coal. The underlying Kent Thin and Kent Thick coals are projected from approximately 30m depth beneath the proposed development. The above-mentioned shallow seams are not recorded or indicated to have been worked locally, based on the Coal Authority records, a review of historical maps and logs for boreholes located to the east.

Based on anticipated thickness of made ground and unrecorded superficial soils of between 3-5m, the shallowest coal is projected to occur from 5m bgl (below ground level) beneath the car park site and due to the shallow dip to the east, occur beyond 6m bgl beneath the PFS site.

Based on the shallow depth of the projected seams beneath the proposed development, the likelihood of them being worked by underground methods is low, with any extraction, if present, likely to have been in the form of bell pits or opencast methods. In the event these seams have been worked from surface, this may present potential theoretical ground stability risks dependent on the nature of the backfilling or treatment. However, given the development

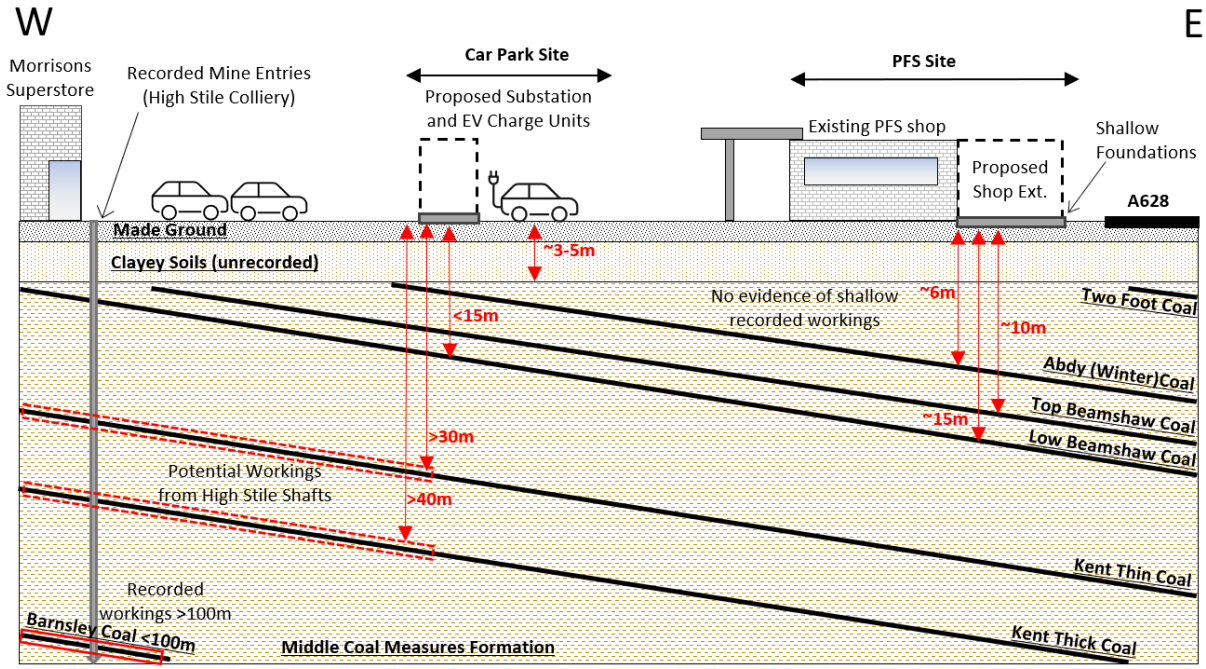
history and current hard surfacing any issues would likely have materialised previously. This is further highlighted by the age of recorded workings in the surrounding area (from the mid-19th century) and the general urban site setting, which will have limited the potential for extensive mineral extraction particularly at shallow depths.

The underlying Kent Thin and Kent Thick coals are projected at depths more suitable for mining by underground methods. Based on the location of the High Stile Colliery shafts to the west, it is considered likely extraction of these seams would have taken place proximal to these shafts and likely extending towards the proposed development at depths beyond 30m bgl, as presented on Figure 3-1. However, such workings would be considered present at depths whereby the overlying thickness of bedrock strata affords sufficient protection to mitigate any risks of void migration to the proposed development.

The shallowest recorded workings are of the Barnsley Coal, however these occur at depths beyond 100m and are not considered to pose a risk to surface.

No mine entries are recorded beneath the proposed development, with the nearest located 60m to the west of the former High Stile Colliery. However, given the extent of mining within the surrounding area and negligible superficial cover, the potential for unrecorded mine entries in the form of adits and bell pits cannot be discounted.

Figure 3-1: Schematic Cross Section



SLR considers that, whilst shallow coal seams are present beneath the proposed development, the likelihood of these having been worked is low, due to:

- No evidence of the shallow seams being worked locally or within the surrounding area, based on Coal Authority and BGS records, and historical mapping.
- No evidence of extensive shallow mineral extraction activities within the surrounding area, with shallow extraction likely to have been limited due to the urban setting.
- Shallow depth of the coals beneath the proposed development is likely to have precluded extraction by underground methods due to risks of instability and water ingress during underground mining activities.
- Any potential ground stability risks would be from shallow opencast workings of the seams and given the development history such workings would likely have been fille.

Any residual risk can be mitigated with appropriate geotechnical design for the proposed shop extension and substation.

In addition to the above regarding the low likelihood of workings of the shallow seams, the relatively small scale of the proposed development footprint and anticipated low loadings indicate that the risks from underground workings are further reduced to the proposed development.

In summary, there are no shallow recorded workings beneath the proposed development and the likelihood of shallow unrecorded workings being present is low. Therefore, risks associated with mine legacy features are considered to be low for the proposed development.

3.2 Mine Gas Assessment

The proposed development is located within a DHRA, classified by the Coal Authority. Therefore, when evaluating the potential risks, liabilities and costs associated with coal mining features, best practice is to consider site conditions using the principles of linkage between sources, pathways and receptors.

Hazardous ground gases may be present from mine entries and any shallow underlying mine workings that are present, although their presence is considered unlikely. Migration of gases may occur via permeable made ground or preferential pathways. Receptors of hazardous gases include on-site human health and future buildings. However, the likelihood of a linkage from a mine gas source to the proposed development is low based on information summarised below:

- The coal seams projected to occur at shallow beneath the proposed shop extension are not considered a credible source of ground gas based on the latest guidance[4] regarding unworked coal measures. As discussed in Section 3.1, the likelihood of the seams being worked is low.
- There is no record of mine gas emission requiring action as outlined within the Coal Authority Mining Report (Appendix C).
- Recorded coal workings in excess of 100m below ground level have limited potential for gas to migrate to surface.
- Limited foundation depths are anticipated and therefore there will be no preferential migration pathway to surface for potential mine gas from underground workings.

The mine entry to the southwest is a sufficient distance (>60m) from the proposed development to not be a likely potential pathway for mine gas migration.

Based on the information above, risks associated with mine gas are considered to be low.

[4] NHBC 2023. Hazardous Ground Gas; An Essential Guide for Housebuilders

4.0 Summary and Conclusions

This coal mining risk assessment for the proposed development at Morrisons Barnsley Service Station concludes that, based on the available information reviewed, both development areas are likely to be minerally stable. Whilst the proposed development is underlain at shallow depths by three coal seams, including one seam projected to subcrop beneath the western limits of the car park site, these seams are considered unlikely to have been mined by underground methods locally given the urban setting and unfavourable mining conditions at such shallow depths.

Two underlying seams have potentially been worked from two shafts located 60m to the west, and these are projected to extend beneath the site at >30m depth. While there is evidence that recorded, and potentially unrecorded workings are present beneath the proposed development at depths >30m, these are considered to pose a low risk to a development of this nature.

There is no record of a mine gas emission requiring action within the boundary of the site according to the Coal Authority and SLR considers the risk associated with mine gas to be low.

The shallow nature of the near surface coals beneath the proposed development precludes extraction by underground methods. However, whilst the likelihood for shallow workings is low, the potential for unrecorded mine entries in the form of bell pits/adits and shallow open cast workings cannot be fully discounted. Therefore, it is recommended that given the projected coal seams occur potentially at or near surface, a watching brief is undertaken during groundworks to identify potential ground stability issues, soft spots within the made ground, unrecorded mine entries or unanticipated ground conditions.

Nevertheless, based on the information reviewed, SLR considers that there is no requirement for further investigation from a mining perspective as the risks of void migration and ground instability are likely to be low for a development of this nature. In addition, should the ground conditions beneath the development be considered suitable and an appropriate foundation design be implemented following geotechnical assessment, this should be sufficient to prevent any residual stability risk from mining impacting the proposed development.

Drawing 01 Site Location Plan

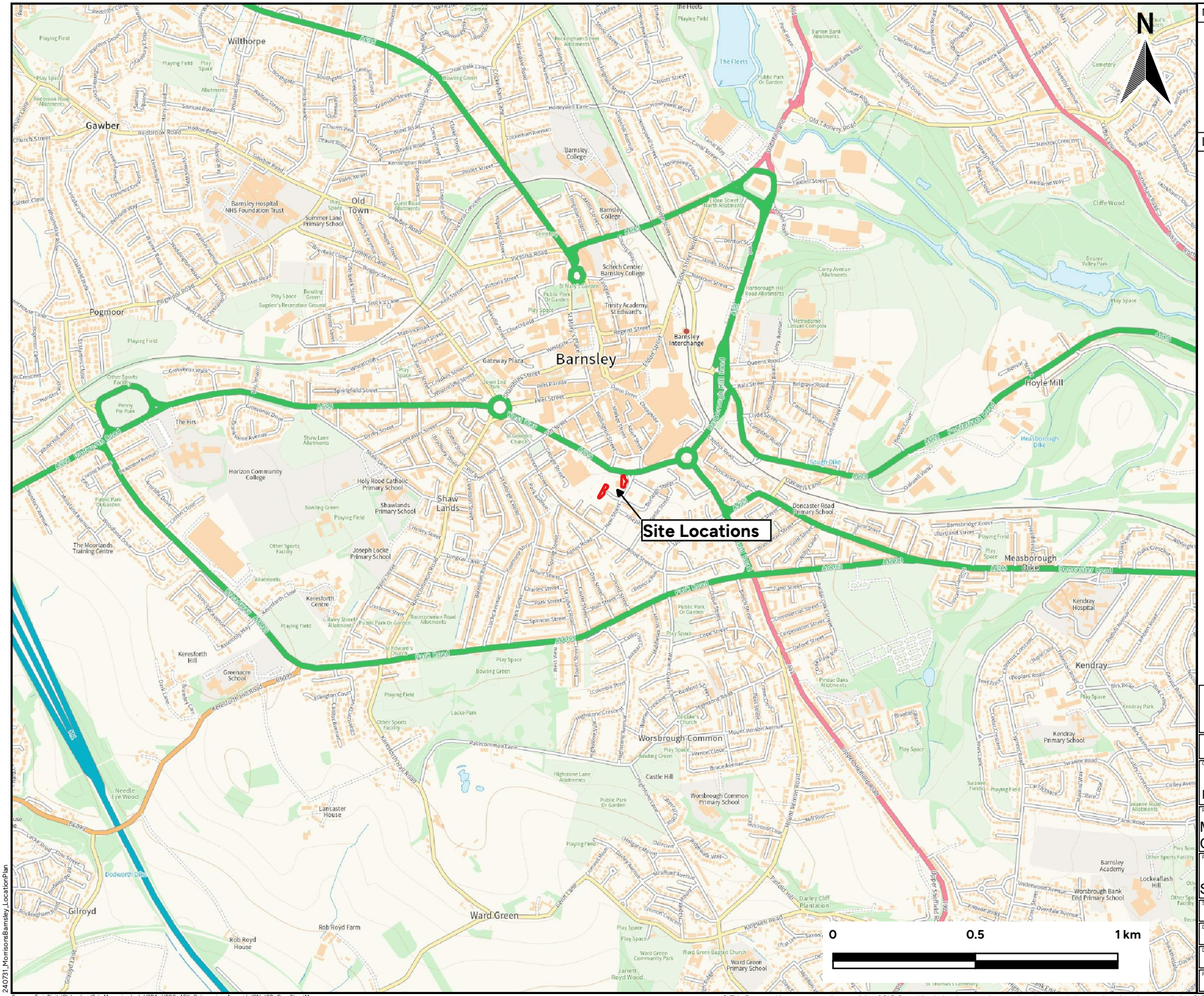
Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

SLR Project No.: 405.065382.00001

1 August 2024



Notes

Legend:

SLR

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Client: Motor Fuel Group

Project: Morrisons Barnsley Coal Mining Risk Assessment

Figure Title: Site Location Plan

Scale	SLR Project No.
1:20,000	405.065382.00001

Designed	Drawn	Checked	Authorised
JS	JS	JS	AH
Date 31/07/24	Date 31/07/24	Date 31/07/24	Date 31/07/24

Figure Number: Drawing 01 | Rev. 1

240731_MorrisonsBarnsley_LocationPlan

Sources: Esri, DigitalGlobe, LandSat, Maxar, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, OpenStreetMap, MapTiler, swisstopo, and the GIS User Community.

Appendix A Site Layout Plan (Client Supplied)

Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

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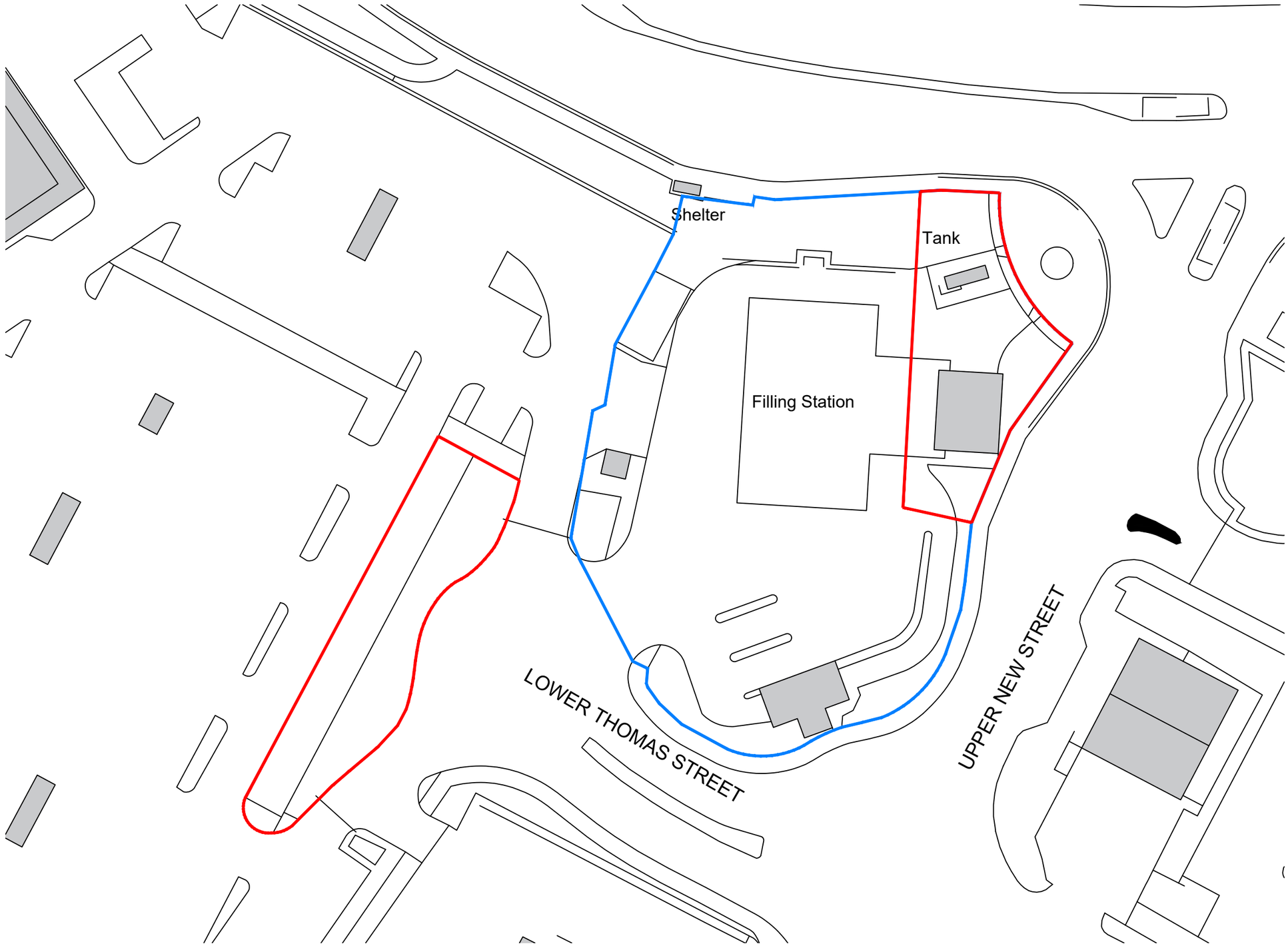
NORTH



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Every effort has been made to ensure the accuracy of these drawings, however MBH Design Studio Ltd. accept no responsibility for any discrepancies arising from the reuse of survey information and preliminary drawings commissioned by the Applicant from others.

KEY PLAN:

APPLICANTS LAND OWNERSHIP LINE
AREA - 3534 SQM - 0.3534 HECTARES

APPLICATION SITE BOUNDARY LINE
AREA - 1062 SQM - 0.1062 HECTARES

SCALE BAR 1:500@A3

0 10 20 30 40 50

REV	DATE	DESCRIPTION	DRAWN/CHECKED
REVISION NOTES			

PLANNING

mbh
MBH Design Studio Ltd.
Brook House Apex Court, Camphill Road, West Byfleet, Surrey, KT14 6SQ
www.mbhltd.com t: 01932 352 727 f: 01932 351 545

CLIENT

mfg motor fuel group

PROJECT
FS2098 - BARNSLEY MORRISONS PFS
LOWER THOMAS ST
BARNSLEY
S70 1LQ

DRAWING TITLE
BLOCK PLAN

DRAWN BY	DATE	SCALE	PAPER SIZE
PT	09.07.2024	1:500	A3
CHECKED BY	DRAWING NUMBER		REV.
JN	14314-2098-BP		-

Appendix B Proposed Site Layout (Client Supplied)

Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

SLR Project No.: 405.065382.00001

1 August 2024

DRAWING LEGEND

- EXISTING KERB
- PROPOSED KERB
- PROPOSED DROPPED KERB
- DEMOLISHED
- EXISTING LINE WORK
- PROPOSED LINE WORKS
- PROPOSED EV BOLLARD - RAL 5015
- EXISTING FLOOD LIGHT
- PROPOSED FLOOD LIGHT
- EXISTING FENCE LINE
- PROPOSED FENCE LINE

EV INFRASTRUCTURE LEGEND

DENOTES DNO HV/LV SUBSTATION
Typial GRP Enclosure 2.8m x 2.8m
All to service provider standard details
TO ICP DETAILS

DENOTES ENVICO TYPE O METERING CABINET
1065mm x 540mm x 1273mm H
GRP Housing set 300mm clear from GRP Enclosure

DENOTES BESPOKE LV PANEL GRP ENCLOSURE
TO BE SPECIFIED BY ELECTRICIAN
Unit Size 3000mm x 2600mm x 2450mm H GRP unit allowed for currently

DENOTES CHARGING POST ALPITRONICS HYC 300

DRAWING NOTES

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GENERAL NOTES

1. This drawing has been prepared for the sole purpose of obtaining planning permission.
2. This drawing is to be read in conjunction with drawings numbered:

14314-2098-LP	Location Plan
14314-2098-BP	Block Plan
14314-2098-200	Existing Site Plan
14314-2098-201	Proposed Site Plan
14314-2098-202	Existing Sales Building Layout
14314-2098-203	Existing Sales Building Elevations
14314-2098-204	Proposed Sales Building Layout
14314-2098-205	Proposed Sales Building Elevations
14314-2098-206	EV Charger Details
14314-2098-207	Substation Enclosure Details
14314-2098-208	LV Enclosure Details
14314-2098-209	Meter Cabinet Details

3. Any advertisements are indicative and are subject to a separate advertisement application
4. Any neighbouring buildings shown on the elevations are diagrammatic and have been extrapolated from site photographs. They have not been measured.

SCHEDULE OF PROPOSED FINISHES

BUILDING EXTERNAL WALLS
Masonry brickwork to match existing external finish. Entire building to be decorated Grey RAL 7016

BUILDING ROOF
Existing sales building flat roof to be retained. New flat roof to be installed over proposed extension.

SHOPFRONT
Part New Shopfront frames to be finished in Grey (RAL7016)
New fully glazed, single auto-sliding door, frames to be finished in Grey (RAL 7016)

CANOPY
Traditional steel framed canopy over forecourt w/o signage to be retained as is.
Canopy to be uplifted to 5.2m High

SURFACING
Existing forecourt surfacing retained as is. Install Asphalt to new footpath and kerbed areas.

BIN STORE
Proposed new bin store

0 10 20
SCALE - METRES - 1:200 @ A1

REV	DATE	DESCRIPTION	DRAWN/CHECKED
REVISION NOTES			

PLANNING

mbh
MBH Design Studio Ltd.
Brook House Apex Court, Camphill Road, West Byfleet, Surrey, KT14 6SQ
www.mbhltd.com t: 01932 352 727 f: 01932 351 545

CLIENT
mfg motor fuel group

PROJECT
FS2098 - BARNSLEY MORRISONS PFS
LOWER THOMAS ST
BARNSLEY
S70 1LQ

DRAWING TITLE
PROPOSED SITE PLAN

DRAWN BY	DATE	SCALE	PAPER SIZE
PT	09.07.2024	1:200	A1
CHECKED BY	DRAWING NUMBER		REV.
JN	14314-2098-201		-

Appendix C Borehole Logs – BGS

Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

SLR Project No.: 405.065382.00001

1 August 2024

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Percussion to 16.3 then Rotary Core.
Diameter of Borehole. 150mm, 110mm

Sheet 1 of 3
Chainage.
Ground Level 101.9 m.A.O.D.
Date 13/1/88 - 17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
MADE GROUND: Topsoil, clay, ash, brick rubble etc.					1.00	11	
		1.50	100.4				
MADE GROUND: Ash, slag, concrete and bricks. (Concrete obstruction pushed from 1.5m to 4.2m)					2.00	50for 10mm*	
					3.00	50 for no penetration	
					4.00	50for no penetration	
		5.20	96.7		5.00	35	
MADE GRDUND: Stiff yellow/brown sandy clay with sandstone and mudstone fragments and sandstone cobbles.					6.00	46	
					7.50	30	
				Cased to 9.00m	9.00	34	
Grey mudstone BDULDER.		9.90	92.0				

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar △ Water
● Bulk ▮ Piezometer

Remarks (Observations of Ground Water etc.) * Seating blows only.

Water seepage at 12.50m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Rotary, Air Flush
Diameter of Borehole. 11

Sheet 2 of 3
Chainage.
Ground Level. 101.9 m.A.O.D.
Date. 13/1/88-17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Grey mudstone BOULDER.		10.40	91.5		10.50	27	
MADE GROUND: Stiff yellow/brown sandy clay with sandstone and mudstone fragments and sandstone cobbles.				casing advanced to 14.30m	12.00	39	
					13.50	53	
		15.30	86.6	casing advanced to 16.00m	15.00	73	
Grey thinly laminated, moderately to occasionally highly weathered MUDSTONE, weak, fissile.					16.00	59 for 150mm	
					16.30		16.1.88
					100 100	0	
					17.00		
					44 17	0	
					18.80		
					75 40	0	

Type of Sample

Is	S.P.T.	▮	Undisturbed
Ic.	C.P.T.	×	Vane
O	Jar	Δ	Water
●	Bulk	▮	Piezometer

Remarks (Observations of Ground Water etc.)
Slow inflow at 12.00m
Groundwater at 16.10 am. 17.1.88

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Rotary, Air Flush
Diameter of Borehole. 115mm-

Sheet 3 of 3
Chainage.
Ground Level. 101.9 m.A.O.D.
Date. 13/1/88 - 17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Grey, thinly laminated, moderately to occasionally highly weathered MUDSTONE weak fissile.		20.55	81.3		75 40	13	
		20.65	81.2		20.80		
Dark grey thinly laminated fresh shaly MUDSTONE, moderately weak, very fissile.		21.25	80.6		82 30	9	
COAL.					22.45		
Grey, laminated fresh silty MUDSTONE, moderately weak to moderately strong, with some slightly weathered bands.		23.10	78.8		88 35	0	
COAL.		23.45	78.4		23.75		17.1.88
Grey fresh slightly clayey, becoming very clayey SILTSTONE, moderately weak to moderately strong, with plant remains.					100 84	52	
Borehole completed at 26.25		26.25	75.6		26.25		

Type of Sample

- Is S.P.T.
- Undisturbed
- Ic. C.P.T.
- Vane
- O Jar
- Water
- Bulk
- Piezometer

Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Percussion to 16.3 then Rotary Core.
Diameter of Borehole. 150mm, 110mm

Sheet 1 of 3
Chainage.
Ground Level 101.9 m.A.O.D.
Date 13/1/88 - 17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
MADE GROUND: Topsoil, clay, ash, brick rubble etc.					1.00	11	
		1.50	100.4				
MADE GROUND: Ash, slag, concrete and bricks. (Concrete obstruction pushed from 1.5m to 4.2m)					2.00	50for 10mm*	
					3.00	50 for no penetration	
					4.00	50for no penetration	
		5.20	96.7		5.00	35	
MADE GRDUND: Stiff yellow/brown sandy clay with sandstone and mudstone fragments and sandstone cobbles.					6.00	46	
					7.50	30	
				Cased to 9.00m	9.00	34	
Grey mudstone BDULDER.		9.90	92.0				

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar △ Water
● Bulk ▮ Piezometer

Remarks (Observations of Ground Water etc.) * Seating blows only.

Water seepage at 12.50m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Rotary, Air Flush
Diameter of Borehole. 11

Sheet 2 of 3
Chainage.
Ground Level. 101.9 m.A.O.D.
Date. 13/1/88-17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Grey mudstone BOULDER.		10.40	91.5		10.50	27	
MADE GROUND: Stiff yellow/brown sandy clay with sandstone and mudstone fragments and sandstone cobbles.				casing advanced to 14.30m	12.00	39	
					13.50	53	
		15.30	86.6	casing advanced to 16.00m	15.00	73	
Grey thinly laminated, moderately to occasionally highly weathered MUDSTONE, weak, fissile.					16.00	59 for 150mm	
					16.30		16.1.88
					100 100	0	
					17.00		
					44 17	0	
					18.80		
					75 40	0	

Type of Sample

Is	S.P.T.	▮	Undisturbed
Ic.	C.P.T.	×	Vane
O	Jar	Δ	Water
●	Bulk	▮	Piezometer

Remarks (Observations of Ground Water etc.)
Slow inflow at 12.00m
Groundwater at 16.10 am. 17.1.88

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. F7784
Location. Malthouse Lane
Client. Barnsley M.B.C.
Method of Boring. Rotary, Air Flush
Diameter of Borehole. 115mm-

Sheet 3 of 3
Chainage.
Ground Level. 101.9 m.A.O.D.
Date. 13/1/88 - 17/1/88

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Grey, thinly laminated, moderately to occasionally highly weathered MUDSTONE weak fissile.		20.55	81.3		75 40	13	
		20.65	81.2		20.80		
Dark grey thinly laminated fresh shaly MUDSTONE, moderately weak, very fissile.		21.25	80.6		82 30	9	
COAL.					22.45		
Grey, laminated fresh silty MUDSTONE, moderately weak to moderately strong, with some slightly weathered bands.		23.10	78.8		88 35	0	
COAL.		23.45	78.4		23.75		17.1.88
Grey fresh slightly clayey, becoming very clayey SILTSTONE, moderately weak to moderately strong, with plant remains.					100 84	52	
Borehole completed at 26.25		26.25	75.6		26.25		

Type of Sample

- Is S.P.T.
- Undisturbed
- Ic. C.P.T.
- Vane
- O Jar
- Water
- Bulk
- Piezometer

Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

STRATA SURVEYS LTD.,
HOLMES CHAPEL ROAD,
MIDDLEWICH, CHESHIRE. CW10 0JB
Telephone: 0606 84 4637 Fax: 0606 84 6657

434574
405920

Borehole Number : 2
Sheet 1 of 1.
Depth 0 to 25 metres

Dates : 18 OCT 89

Job Number : 5138 Location : Lookers, Barnsley
Client : STOCKS

Dia. & Drilling Methods
Drilled using H/E rotary rig, 3 7/8" rock bit, N,W,Y Drill Pipe, airflushed using 375 Compressor

Description of Strata	Rsd. Level	Legend	Depth	Thick-ness	Tests	Remarks	Daily Prog.
	101.20		0.00				
Overburden				(0.90)			
	100.30		0.90				
Brown CLAY				(3.00)			
	97.30		3.90				
Light grey MUDSTONE	96.80		4.40	(0.50)			
Black silty MUDSTONE				(1.40)			
	95.40		5.80				
Light grey MUDSTONE				(2.20)			
	93.20		8.00				
COAL,				(1.20)			
	92.00		9.20				
Light grey MUDSTONE				(4.20)			
	87.80		13.40				
Black silty MUDSTONE	87.50		13.70	(0.30)			
Light grey MUDSTONE				(1.80)			
	85.70		15.50				18/10
Borehole Completed							

Key :

Progress / Water Levels
___ Borehole Depth
_ _ Casing Depth
▽ Water Level

In-Situ Tests
N N Value
C CPT Value

General Remarks :

Drilled by: M.Johnson | Logged by: Driller

SE 30 NW 245

Norwest Holst Soil Engineering Ltd.

Borehole No. **B**

BOREHOLE LOG

3471 0616

Contract No. F5195
Location Wesley Street, Barnsley
Client Rohan Construction Management Limited
Method of Boring Rotary
Diameter of Borehole 105 mm

Sheet 1 of 3
Chainage
Ground Level m.A.O.D.
Date 3/6/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
MADE GROUND: Bricks.		3.80			3.80		
Dark grey, laminated CLAY with iron-stone fragments.		4.30			60% 4.30	0%	
Black friable laminated COAL.		5.10					
Moderately weathered, light grey, weak friable SILTSTONE, with plant fossils.		6.30			80% 6.30	10%	
Slightly weathered, light grey, moderately strong SILTSTONE, with some plant fossils. Becomes finer grained with depth.		8.90			100%	0%	
Black friable COAL.		9.20			9.00		
Slightly weathered, grey , silty MUDSTONE with plant fossils.		9.35			100%	7%	
Strata as next sheet.							

Type of Sample

- Is S.P.T.
- Undisturbed
- Ic. C.P.T.
- Vane
- O Jar
- Water
- Bulk
- Piezometer

Remarks (Observations of Ground Water etc.)

Seepage of water at 9.00 m.

SE 30 NW 245

Norwest Holst Soil Engineering Ltd.

Borehole No. **B**

F5195

Contract No.

BOREHOLE LOG

Location: Wesley Street, Barnsley

Client: Rohan Construction Management Limited

Method of Boring: Rotary

Diameter of Borehole: 105 mm

Sheet 2 of 3

Chainage:

Ground Level: m.A.O.D.

Date: 3/6/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Slightly weathered light grey, moderately strong SILTSTONE, with some plant fossils, becomes finer grained with depth. to a silty mudstone from 11.60 m to 12.00 m.		12.00			100%	7%	
Slightly weathered, laminated grey fine grained moderately strong micaceous silty SANDSTONE.		12.80			12.10		
Slightly weathered, laminated grey, moderately weak silty MUDSTONE.		13.30					
Highly weathered, yellow brown, fine and medium grained, moderately weak SANDSTONE.		13.70			100%	35%	
Slightly weathered, laminated grey, moderately strong sandy SILTSTONE.		14.90					
Slightly weathered laminated, light grey, moderately strong silty MUDSTONE.		18.20			15.30		
					100%	17%	
					18.00		
Black friable COAL with some carbonaceous mudstone bands.		20.00			100%	14%	

Type of Sample

- Is S.P.T.
- Undisturbed
- Ic. C.P.T.
- Vane
- O Jar
- Water
- Bulk
- Piezometer

Remarks (Observations of Ground Water etc.)

SE 30 NW 245

Norwest Holst Soil Engineering Ltd.

Borehole No. **B**

BOREHOLE LOG

Contract No. F5195
Location Wesley Street, Barnsley
Client Rohan Construction Management Limited
Method of Boring Rotary
Diameter of Borehole 105 mm

Sheet 3 of 3
Chainage
Ground Level m.A.O.D.
Date 3/6/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Slightly weathered, laminated, light grey, moderately strong SILTSTONE.		21.20			100% 21.20	14%	

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar △ Water
● Bulk P Piezometer

Remarks (Observations of Ground Water etc.)

SE 30 NW 244

Norwest Holst Soil Engineering Ltd.

Borehole No. **A**

BOREHOLE LOG

3469 0618

Contract No. F5195
Location Wesley Street, Barnsley
Client Rohan Construction Management Limited
Method of Boring Rotary
Diameter of Borehole 105mm

Sheet 1 of 3
Chainage
Ground Level m.A.O.D.
Date 27/5/82-28/5/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
MADE GROUND: Bricks.		4.10			4.10		
Completely to highly weathered, laminated, grey weathered brown, weak silty MUDSTONE.		4.90			84% 4.60	0%	
Moderately weathered, laminated, grey, moderately weak silty MUDSTONE, ironstained along fractures.		7.40			100% 6.00	0%	
Slightly weathered, laminated, light and dark grey interlaminated, moderately strong fine sandy SILTSTONE, ironstained along fractures, becomes very sandy in places.					100% 9.10	17%	

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar Δ Water
● Bulk Piezometer

Remarks (Observations of Ground Water etc.)

Seepage of water at 9.00m.

SE 30 NW 244

Norwest Holst Soil Engineering Ltd.

Borehole No. **A**

BOREHOLE LOG

Contract No. F5195
Location Wesley Street, Barnsley
Client Rohan Construction Management Limited
Method of Boring Rotary
Diameter of Borehole 105mm

Sheet 2 of 3
Chainage
Ground Level m.A.O.D.
Date 27/5/82-28/5/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Slightly weathered, laminated, light and dark grey interlaminated, moderately strong fine sandy SILTSTONE, ironstained along fractures, becomes very sandy in places.		10.10			100%	18%	
Slightly weathered, laminated, grey moderately weak, silty MUDSTONE.					11.90		
					100%	0%	
		13.50			13.50		
Black friable COAL.		14.10					
Slightly, weathered laminated, dark grey weak silty MUDSTONE.		14.60			100%	0%	
Black friable COAL.		14.80					
Slightly weathered, laminated, grey weak silty MUDSTONE with plant fossils.		15.00			15.00		
Black friable COAL.		15.30					
Slightly weathered, laminated, grey, weak silty MUDSTONE with plant fossils.		17.30			100%	30%	
Slightly weathered, laminated, light and dark grey interlaminated, moderately strong fine sandy SILTSTONE, becomes very sandy in places.		19.25			18.00		
Slightly weathered, laminated, light and dark grey, interlaminated moderately strong SILTSTONE.					100%	68%	

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar △ Water
● Bulk Piezometer

Remarks (Observations of Ground Water etc.)

SE 30 NW 2/44

Norwest Holst Soil Engineering Ltd.

Borehole No. **A**

BOREHOLE LOG

Contract No. F5195
Location Wesley Street, Barnsley
Client Rohan Construction Management Limited
Method of Boring Rotary
Diameter of Borehole 105mm

Sheet 3 of 3
Chainage
Ground Level m.A.O.D.
Date 27/5/82-28/5/82

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Slightly weathered, laminated, light and dark grey, interlaminated, moderately strong SILTSTONE, becomes finer grained with depth.					100%	68%	
					21.10		
		22.70					
Slightly weathered, laminated, dark grey moderately weak MUDSTONE, carbonaceous from 22.70m to 22.90m and 23.40m to 23.70m.					100%	19%	
		23.70			23.70		
Black friable COAL.		24.20					
Slightly weathered, grey moderately strong silty MUDSTONE with listric surfaces.					100%	31%	
		25.85					
Slightly weathered, laminated, grey, moderately strong, SILTSTONE.		26.30			26.30		

Type of Sample

Is S.P.T. ■ Undisturbed
Ic. C.P.T. × Vane
O Jar Δ Water
● Bulk Piezometer

Remarks (Observations of Ground Water etc.)

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

SE30NE 259

Contract No. F7169
Location Wholesale Market
Client Barnsley MBC
Method of Boring Rotary Openhole
Diameter of Borehole 170mm

435106 406108

Sheet 1 of 2
Chainage
Ground Level m.A.O.D.
Date 24/10/86

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
MADE GROUND: Ash and clay		0.30					
MADE GROUND: Dark grey clay		1.00			1.00	12	
MADE GROUND: Ash and clay		6.50			3.00	9	
Brown sandy CLAY with sandstone fragments		7.00					
Brown SANDSTONE		7.50			7.50	17	
Weathered grey/brown SANOSTONE with clay bands/clay filled joints		9.50					
Weathered brown SANDSTONE and MUDSTONE							

Type of Sample

Is	S.P.T.	▮	Undisturbed
Ic.	C.P.T.	×	Vane
O	Jar	Δ	Water
●	Bulk		Piezometer

Remarks (Observations of Ground Water etc.)

Water seepage 9.50m
Water struck at 11.00m
Final standing level 10.00m

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Norwest Holst Soil Engineering Ltd.

Borehole No. 2

BOREHOLE LOG

Contract No. FZ169
Location Wholesale Market
Client Barnsley MBC
Method of Boring Rotary Openhole
Diameter of Borehole 170mm SE30NE 259

Sheet 2 of 2
Chainage
Ground Level m.A.O.D.
Date 24/10/86

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
Weathered brown SANDSTONE and MUDSTONE		10.80					
Black shaly MUDTONE		11.50					
Grey MUDSTONE		11.80					
COAL and seatearth MUDSTONE		12.50					
Grey MUDSTONE		13.00					

Type of Sample

- Is S.P.T. ■ Undisturbed
- Ic. C.P.T. × Vane
- O Jar △ Water
- ● Bulk ✱ Piezometer

Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Appendix D Coal Authority Mining Report

Morrisons Barnsley Service Station

Coal Mining Risk Assessment

Motor Fuel Group Ltd

SLR Project No.: 405.065382.00001

1 August 2024

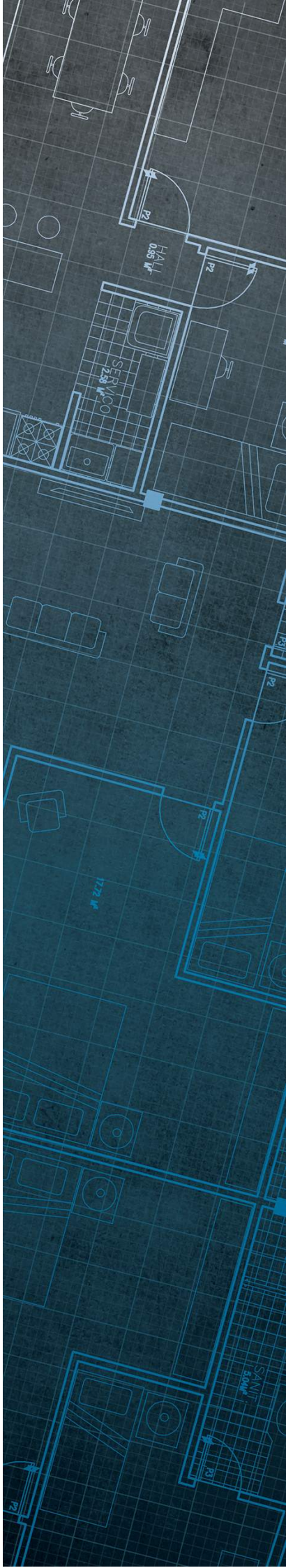
The Coal Authority

Consultants

Coal Mining Report

Petrol Station
Wm Morrisons Supermarket
Westway
Barnsley
Barnsley
S70 1LQ

Date of enquiry:	**26 July 2024**
Date enquiry received:	**26 July 2024**
Issue date:	**26 July 2024**
Our reference:	**51003439994001**
Your reference:	**405.065382.00001**



Consultants

Coal Mining Report

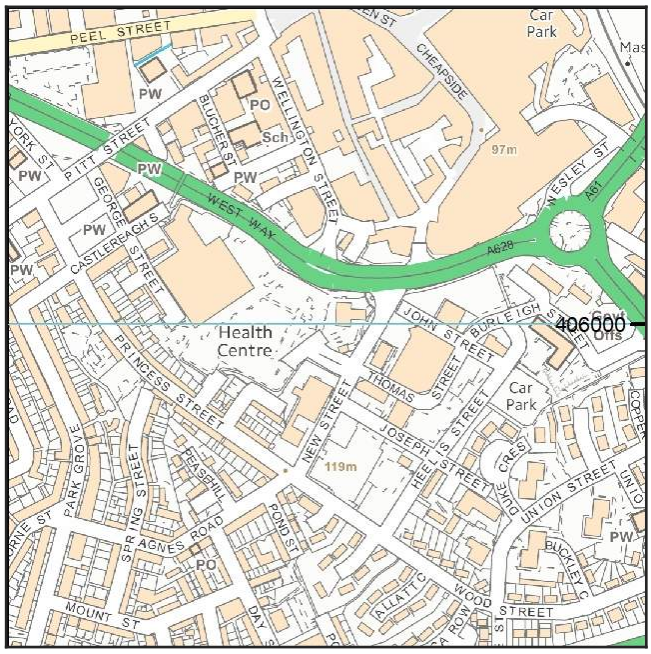
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Josh Stinson

Enquiry address

Petrol Station
Wm Morrisons Supermarket
Westway
Barnsley
Barnsley
S70 1LQ



Approximate position of property

Map data

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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	BARNSLEY	Coal	64J0	129	South-East	5.0	East	274	1852
unnamed	BARNSLEY	Coal	64SM	132	South-East	6.2	East	188	1853

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

1659	SCC10	1082
PO0	CT83	BE35

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
TWO FOOT	Coal	Yes	Within	N/A	42
WINTER	Coal	Yes	9.1	West	21
WINTER	Coal	Yes	7.4	North-West	35

Geological faults, fissures and breaklines

No faults, fissures or breaklines 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
16.9	South-East
18.0	South-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 in an area where a notice to withdraw support was given in 1963.

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.

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.

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 Coal Authority

Summary of findings

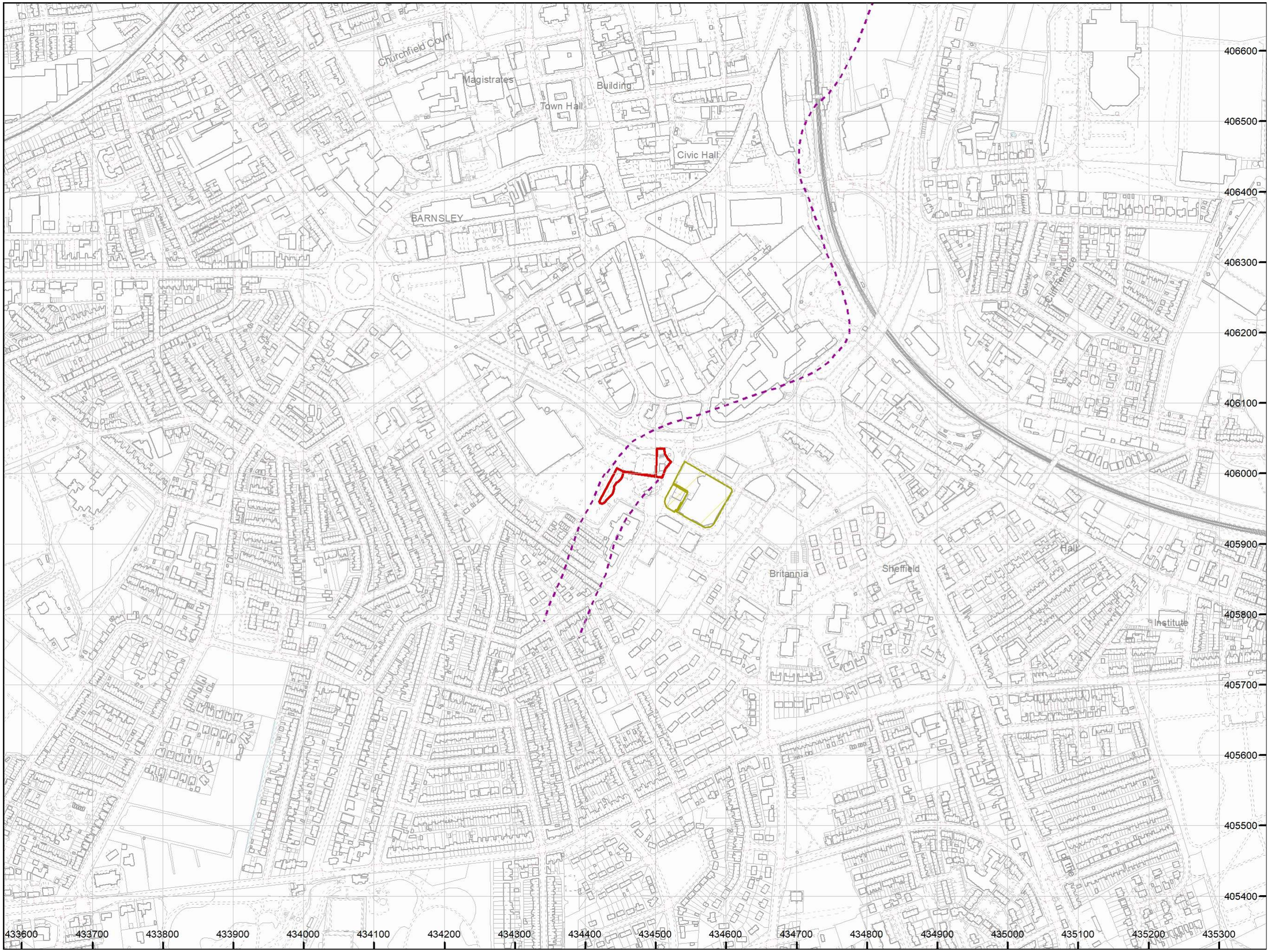
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Outcrop (Conjectured)

Site investigations



How to contact us
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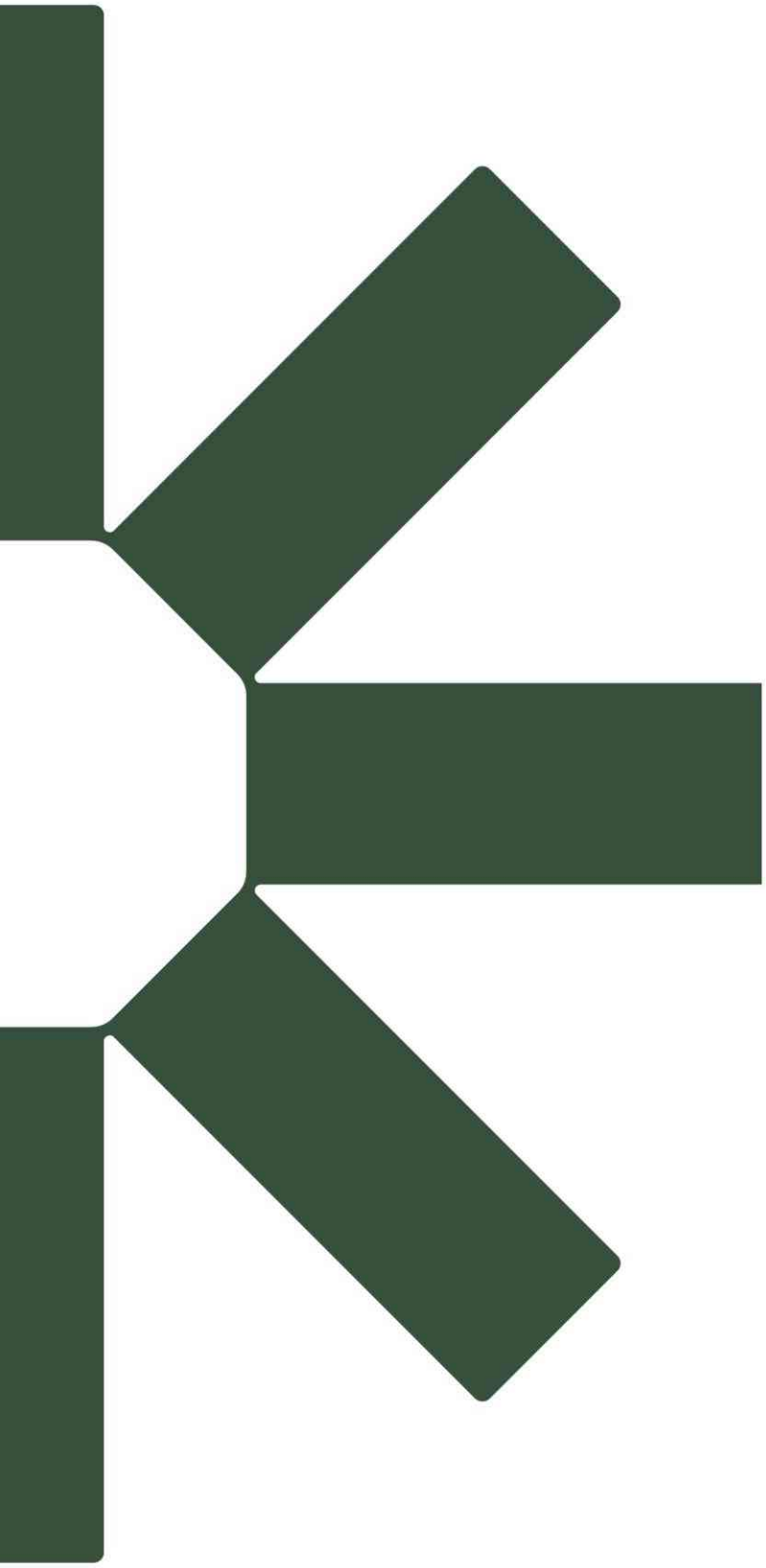

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