PHASE I DESK STUDY

Former Black Bull Hotel,
39 Grange Lane,
Barnsley
S71 5AE

For

ADP

October 2020

20/1073.1.2

Geo^2 Remediation Limited

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ADP

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Report ref no. 20/1073.1.2

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Revision log

Issue No.	Date	Description
1.1	26/10/2020	First Issue
1.2	28/10/2020	Revised with site walkover

ADP

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1.0 Introduction

Geo^2 Remediation Limited was commissioned by ADP, to conduct a Phase 1 Desk Study of a site formerly occupied by the Black Bull Hotel, 39 Grange Lane, Barnsley, S71 5AE. The site is 0.18 hectares in area and located at grid reference 437250, 405590. The study was undertaken prior to redevelopment for a continuing commercial use.

The Phase I Environmental Assessment, consisting of a desk study and site walkover, was conducted to establish evidence of potential contamination, if any, resulting from the site's past and current landuse. The desk study was also undertaken to identify possible sensitive receptors that may be at risk within the locality of the site.

2.0 Site Reconnaissance

2.1 Site Use and Location

The site is situated approximately 2.7km east of the town of Barnsley. Figures 1 and 2 in Appendix A show the location of the site. The site was derelict land with a Yorkshire Water pumping station at the time this study was undertaken.

The area shown within the bold site boundary on Figure 2 in Appendix A, will be referred to throughout this document as 'the site'.

The site is currently a derelict area following the demolition of the former Black Bull Hotel. A small Yorkshire Water pumping station is present in the north of the site.

The site is accessed via one ingress and egress point, located along the eastern boundary, from Grange Lane. The site is currently accessible for pedestrians and small ATV's, vehicle access is not currently possible.

2.2 Site Walkover

A walkover inspection was carried out by Geo^2 on the 27th October 2020 by a competent and qualified geo-environmental engineer. During the site walkover the current use of the site, along with any areas of potential contamination were identified, these are outlined below and spatially located on the plan shown in Figure 3: Table 1 provides a summary of each area at the site.

Area	Description
North East Quadrant	Yorkshire Water pumping station. Area for former Black Bull Hotel building. Pile of unknown soil fenced off by heras fencing. Are predominantly soft standing, apart from tarmac track leading to pumping station.
North West Quadrant	Area of soft standing with old benches – considered to be former outdoor seating are for the public house.
South East Quadrant	Entrance to site, predominantly tarmac hardstanding.
South West Quadrant	Parking bays and manhole cover. Predominantly hard standing

Table 1. Summary of Areas on Site

The site is predominantly covered in vegetation and softstanding. Hardstanding is present in the form of tarmac to the south of the site and a track to the pumping station. This is in good to fair condition.

The site is not currently secured against trespassers. Fencing of approximately 1.0m in height bounds the southern and western site boundaries. However, the ground height to the west of the site is elevated in comparison to the site and the fence is in poor condition. The north of the site is bound by a wall of approximately waste-height. The eastern site boundary is bound by large concrete blocks. The site boundaries allow for easy access of pedestrians and small ATV's, but not larger vehicles such as cars.

A substation was identified approximately 20m north of the site, across the one-way road. This appears to have been constructed after 1981 and therefore should not contain any PCB equipment (following banning of this chemicals use in new components in this year).

Photographs of the site walkover are presented in Appendix B of this report. No visual or olfactory evidence of land contamination, or associated evidence such as vegetation die-back was observed.

2.3 Surrounding Land Uses

The surrounding landuses are summarised in Table 2.

Direction	Landuse
North	Doncaster Road with a railway line, trees and residential housing beyond. Electrical substation 20m north of the site.
East	A633 with undeveloped area and housing/commercial buildings beyond.
South	Doncaster Road with large roundabout and commercial buildings beyond.
West	Restaurant with parking and Doncaster Road beyond.

Table 2. Landuses in the Surrounding Area

2.4 Site Topography

The site walkover identified that the site has a gentle slope to the east.

2.5 Proposed Redevelopment

It is understood that the site is proposed to be redeveloped into a Burger King restaurant with associated drive thru and parking accessed from Doncaster Road and a Yorkshire Water pumping station.

A plan of the proposed redevelopment is included as Figure 4, in Appendix A.

3.0 Desk Study

Information regarding the environmental setting of the site was obtained from the Envirocheck report, which collated information from a variety of sources. A copy of the Envirocheck report is presented in Appendix C.

Where indicated in the following sections, the data from the Envirocheck report has been supplemented with additional information obtained from freely available on-line data.

3.1 Site Geology

The BGS online mapping tool indicates that the bedrock underlying the site consists of the Pennine Middle Coal Measures Formation - Mudstone, Siltstone and Sandstone. Comprising sedimentary Bedrock formed approximately 310 to 318 million years ago in the Carboniferous Period

The BGS online mapping indicates that superficial deposits underlying the site are not recorded.

The Envirocheck report, which is presented in Appendix C, indicates that the site has a 'highly unlikely' to 'no hazard' potential for all ground stability hazards.

There are nineteen (19) BGS Recorded Mineral Sites within 1,000m of the site. The nearest of these is located 266m to the east and relates to the ceased opencast mining at Ardsley Brindstone Quarry.

The site is described as being in an area which might be affected by coal mining. As such a Consultants Coal Mining Report has been obtained from the Coal Authority, and a summary is presented below. This report is included in Appendix D.

- The property is in an area which could be affected by past underground mining.
- There are no seams that intersect the site that have previously been mined.
- The report indicates that there are two abandoned mine plans present that intersect with the site boundary.
- The Coal Authority has not recorded any mine gases within 500m of the site.
- There are no probable unrecorded shallow workings.
- There are no coal mine entries known to the Coal Authority within, or within 100 metres, of the boundary of the property.
- 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.
- The property is in an area where a notice to withdraw support was given in 1982.
- 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.
- A structural engineer should be consulted to ensure appropriate development advice is adopted.

The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). As such, no radon protection measures are necessary in the construction of new homes or extensions.

3.2 Site Hydrogeology

The bedrock beneath the site is classified as a Secondary - A Aquifer which is described by the Environment Agency as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The Secondary – A bedrock aquifer is considered to have high vulnerability.

There are two (2) groundwater abstraction points registered within 1,000m of the site. The nearest of these is situated 523m north of the site and relates to Other Industrial/Commercial/Public Services: General Washing/Process Washing by C Soar & Sons.

3.3 Site Hydrology

The nearest surface water feature is an unnamed feature 143m north-west of the site in the location of the historical canal, this is most likely related to the feature.

There are no registered surface water abstraction points located within 1,000m of the site.

The Envirocheck report indicates that the site is not situated in an area with the potential for groundwater flooding. No specific mention of surface water flooding is noted.

There are forty (40) discharge consents located within 1,000m of the site. The nearest is located 282m north of the site and is related to Yorkshire Water Services Ltd and Sewerage Networks.

3.4 Waste

There is one (1) BGS recorded landfill site within 1,000m of the site. This is located 52m south-west of the site and is named ‘Disused Canal’.

There are thirteen (13) historical landfill sites within 1,000m of the site. The closest of these is located 45m south-west of the site and is named ‘Disused Canal – Doncaster Road’.

There are eight (8) area of local authority landfill sites. The closest of these is located 248m north-west of the site.

There are eight (8) records of potentially infilled land (non-water) within 1000m of the site. The closest of these is located 177m south-east of the site and relates to unknown filled ground.

There are twenty-three (23) areas of potentially infilled land (water) within 1,000m of the site. The closest of these is 59m south-west of the site and relates to unknown filled ground.

There are two (2) registered waste transfer waste management sites within 1000m of the site. The nearest of these is located 48m north of the site and relates to B. D. R. Waste Disposal Ltd which accepts a vast array of waste types.

Two (2) licensed waste management sites are within 1000m of the site. The nearest of these is located 380m east of the site are relates to Stairfoot Landfill. The license status is ‘Closure’.

3.5 Other Potentially Contaminative Land uses

There are four (4) Petrol Filling Station located within 1000m of the site. The nearest is the Tesco Barnsley Extra located 582m south of the site.

Thirty-one (31) commercial services are listed within 1000m of the site. The nearest of these is located 157m south-east of the site and relates to William Firth & Son Ltd, a scrap metal merchants.

3.6 Other Receptors

The site is not within an environmentally sensitive area.

No areas of Ancient Woodland, Sites of Special Scientific Interest, National Parks or Special Areas of Conservation exist within 1000m of the site.

3.7 Unexploded Ordnance

The site is listed as falling within a low risk of unexploded bombs based on evidence from Zetica UXO (online).

4.0 Site History

Details regarding the development of the site, its immediate surroundings and potentially contaminative land uses were obtained from a review of historical maps.

Copies of the maps are provided as Appendix C and a summary is provided in Tables 3a and 3b. All distances are approximate and are relative to the site, unless otherwise stated.

Date	Onsite	Offsite
1854	Buildings exits mainly within the northern half of the site and are labelled as 'Black Bull Hotel'. Offsite buildings encroach on the southern site boundary.	A railway passes approximately 10m north-east of the site, with a railway junction approximately 20m north of the site. Sandstone quarry is labelled approximately 1.5km north-west of the site.
1892	No Significant Changes.	The site is surrounded by predominantly residential buildings. A station is labelled along the railways approximately 30m south-east of the site. Residential buildings exist approximately 20m west of the site. A brick works is labelled approximately 300m north-west of the site. Residential properties exist across the railway line. Shepherd's Farm is labelled approximately 250m north-east of the site. A road passes along the northern site boundary and one across the eastern site boundary. A reservoir exists 250m south of the site. Dearne and Dove Canal passes approximately 50m west of the site. Police stations is labelled approximately 300m east of the site.
1894	No Significant Changes.	No Significant Changes.
1906	No Significant Changes.	Further development of residential properties is evident to the immediate south and west of the site. Further residential development is also evident near Shepherd's Farm, to the north of the railway junction and further west of the site. Manor Flint Glass Works is labelled approximately 200m south of the site. A further railway line has been constructed that passes 10m south-east of the site. A large building has been constructed approximately 250m north-west of the site.
1931	No Significant Changes.	Police station 300m east of the site has been redeveloped into a larger compound. Large residential estate has been constructed approximately 1.5km south west of the site.
1938	No Significant Changes.	Further development to the estate 1.5km south-west of the site.
1948	No Significant Changes.	No Significant Changes.

Table 3a. Summary of review of historical maps

Date	Onsite	Offsite
1954	No Significant Changes.	No Significant Changes.
1960	No Significant Changes.	Shepherd's Farm no longer labelled. Large building approximately 250m north-west of the site is not labelled at 'works'. Roads that pass the northern an eastern site boundary now labelled as Doncaster Road and Grange Lane respectively.
1962	No Significant Changes.	No Significant Changes.
1966	No Significant Changes.	Further development to the estate 1.5km south-west of the site.
1967	No Significant Changes.	Railway line that ran 10m south east of the site no longer in place. Dearne and Dove Canal no longer present. A large warehouse has been constructed approximately 250m south of the site, where old reservoir used to be. A garage has been constricted approximately 300m south east of the site.
1974	No Significant Changes.	Manor Flint Glass Works has been redeveloped and now labelled as 'works'.
1977	Buildings along southern site boundary have been demolished	Residential properties to south of site have been demolished and a large roundabout constructed approximately 30m south of the site.
1980	No Significant Changes.	No Significant Changes.
1990	Site has been redeveloped into one larger building situated to the centre and eastern area of the site.	No Significant Changes.
1993	No Significant Changes.	No Significant Changes.
1999	No Significant Changes.	Railway lines now decommissioned.
2000	No Significant Changes.	No Significant Changes.
2006	No Significant Changes.	Stairfoot Business Park labelled approximately 900m south-east of the site. Large sewage works constructed approximately 3km north-east of the site.
2019	The Black Bull hotel has been demolished. Yorkshire Water pumping station remains.	No Significant Changes.
2020	No Significant Changes.	No Significant Changes.

Table 3b. Summary of review of historical maps

The site history indicates that the site has some small buildings within the boundary that encroached from offsite to the south. The buildings to the south were demolished around 1977 and the site was redeveloped in 1990. In 2019 the Black Bull Hotel was demolished. This means there is no clear onsite source of contamination.

The area around the site has become successively more developed throughout historical maps, with significant residential commercial/industrial developments present, including some heavy industry along with the construction and subsequent demolition of railways.

The predominant potentially contaminative historical activity occurring onsite is the redevelopment and demolition of the site. The railway constructions, road redevelopment, infill of the canal and the Stairfoot Landfill site are considered to be potentially contaminative landuses which may have had the potential to impact upon the site. All other potentially contaminative landuses identified in the historical map review are considered to be too distant from the site to have potentially impacted upon it.

5.0 Hazard Identification

UK legislation and guidance on assessing potentially contaminated land recommends the use of a risk assessment process based on a review of source/pathway/receptor relationships for various environmental media. The first stage of any risk assessment is to identify, using the desk study data and site information, the presence and extent of any hazard at the site, theoretical or demonstrable.

A key component of the overall risk assessment process is identification of "significant contamination linkages" between contaminants and receptors. This can be accomplished through development of a site-specific conceptual model in which the potential contaminants, pathways and receptors identified on-site are described.

Each element can be defined as follows:

- **Contaminant source:** A substance either on or under the land and which has the potential to cause harm or pollution to human or environmental receptors.
- **Pathway:** A route or means by which a receptor can be exposed to or affected by a source.
- **Receptor:** A living organism or an ecological system or, controlled water, or property including buildings, crops and livestock.

The presence of all three of the above elements identifies a contamination linkage and a potentially unacceptable risk.

5.1 Contaminant Source

The desk study identified that no significant source of contamination exits onsite, however, it is possible that some infill from redevelopment of the site may have pose as a potential source.

The predominant off-site risks are related to ground gas generation from the infill of the canal and the Stairfoot landfill site. It is possible that construction of nearby roads and railways could impact the site.

There is a potential for asbestos to have been used in the fabric of historical buildings onsite. If demolition works have been conducted to code with the appropriate removal of any asbestos this should not pose a risk to the site.

5.2 Receptors or Point of Exposure

Potential receptors both on and offsite that could be affected by contamination hazards at the site are listed below:

- **Surface waters**

The nearest surface water is an unknown feature, located 143m north-west to the west of site. This water body may act as a receptor to any contamination from the site. Migration of on-site contamination could occur via site drainage, made ground or through the underlying aquifer. Any impact may affect the amenity of this resource, water quality or aquatic life.

- **Groundwater as a resource**

The bedrock underlying the site is listed as a Secondary - A Aquifer, noted as being High Vulnerability.

Any impact to groundwater may affect the quality of the resource, impact future users, or impact local groundwater abstraction points.

- **Current site users**

This will include exposure of current users on the site. The proposed redevelopment of the site will result in almost entirely hardcover and will effectively sever many pathways. Site users in any landscaped areas could potentially be exposed to any contamination present within the soil.

- **Neighbouring site users**

The nearest residential property is 80m north of the site. This receptor is considered significant as any contamination could potentially migrate into neighbouring properties, placing residents at risk of exposure.

5.3 Contamination Pathways

Potential pathways by which any identified contamination may manifest itself in the environment are as follows:

- **Groundwater migration**

  Records suggest that the underlying geology has the potential to provide a pathway for vertical migration and could therefore provide a potential threat to the water body within bedrock.

- **Accumulation of volatile vapours and tainting of potable water**

  Volatile compounds may generate potentially harmful vapours which may accumulate within future buildings onsite or current buildings offsite.

  Shallow contamination or ground gases may migrate along, or within, water pipes or ducting, potentially providing a preferential pathway and permitting tainting of buried water pipes. Exposure to contaminated material may lead to tainting of potable water supplies.

- **Direct contact, inhalation and ingestion**

  This may occur during redevelopment works at the site or in the event of a future change of landuse. This pathway is not considered to be currently active due to the predominantly unexposed surface and hardcover landuse of the site but may become active during any redevelopment or in future landscaped.

5.4 Initial Contaminant Linkages

All contamination linkages arising as a result of the interconnection of the contaminant source, contamination pathways and potential receptors detailed above are summarised in Table 4, below.

Linkage No.	Source	Pathway	Receptor
1	Historical commercial site use.	Leaching to groundwater followed by migration within the aquifer.	Surface waters – 143m to the north-west of the site.
2			The Secondary-A Aquifer as a resource.
3		Exposure to harmful vapours, hazardous ground gas and tainting of water supply.	Current and future site users, principally within future buildings onsite.
4			Neighbouring residents on nearby properties.
5		Direct contact, inhalation and ingestion.	Site users in landscaped areas.
6	Infill of canal 50m west of the site and Stairfoot Landfill 100m east of the site.	Exposure to harmful vapours, hazardous ground gas and tainting of water supply.	Current and future site users, principally within future buildings onsite.

Table 4. Identified Contamination Linkages

6.0 Qualitative Risk Assessment

Each of the identified plausible contamination linkages in the preliminary conceptual site model is reviewed based upon the findings of the site investigation which allows a greater understanding of the ground conditions at the site, site observations, soil and groundwater quality and chemical analysis. This review, discussed for each contamination linkage in Tables 5 a-f, allows a qualitative risk assessment to be undertaken.

A qualitative risk assessment is undertaken in line with guidance provided in *Guidance for the Safe Development of Housing on Land Affected by Contamination* (EA / NHBC, 2008). The purpose of this assessment is to determine the relative significance of the identified contamination linkages by assessing the probability of an impact occurring and by assessing the perceived severity of an impact to a receptor. The classification of these two factors is detailed in Appendix E.

Those linkages considered of low risk or less on the basis of the additional site data will not be considered any further in this assessment. Linkages considered to be more significant are identified as presenting a potentially significant hazard (PSH) which may present a potentially unacceptable risk to the identified receptor. In these instances, further works may be considered necessary.

<table>
<tr><td>Source-</td><td colspan="3">Historical commercial site use.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-1</td><td>Leaching to groundwater followed by migration within the aquifer.</td><td>Receptor-</td><td>Surface waters – 143m to the north-west of the site.</td></tr>
<tr><td colspan="4" rowspan="3">The underlying geology enables contaminants to have the potential to migrate into the groundwater, which may be in connectivity with the nearest surface water body, which is 143m to the north-west of site.

As no significant source was identified onsite, there is considered to be a reduced probability that the site could impact the water quality or aquatic life of the surface water.</td><td>Unlikely</td><td>Medium</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Low risk</td></tr>
</table>

Table 5a. Qualitative Risk Assessment

<table>
<tr><td>Source-</td><td colspan="3">Historical commercial site use.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-2</td><td>Leaching to groundwater followed by migration within the aquifer.</td><td>Receptor-</td><td>The Secondary-A Aquifer as a resource.</td></tr>
<tr><td colspan="4" rowspan="3">Likely permeable strata may permit transmission of contaminants vertically into the aquifer. However, as no significant potential source was identified onsite. Any impact to the underlying aquifer from current and historical activities may damage the quality of the protected water resource, which is listed as high vulnerability.</td><td>Unlikely</td><td>Medium</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Low risk</td></tr>
</table>

Table 5b. Qualitative Risk Assessment

<table>
<tr><td>Source-</td><td colspan="3">Historical commercial site use.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-3</td><td>Exposure to harmful vapours, hazardous ground gas and tainting of water supply.</td><td>Receptor-</td><td>Current and future site users, principally within future buildings onsite.</td></tr>
<tr><td colspan="4" rowspan="3">It is possible that vapours and gases may gain entrance through cracks or service ducts and potentially may lead to the tainting of water supply pipes. Any such impact may be capable of causing harm to human health.

No onsite significant potential source was identified, meaning the risk of exposure to harmful vapours, hazardous ground gas and tainting of water supply is unlikely to be significant.</td><td>Low Likelihood</td><td>Mild</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Low risk</td></tr>
</table>

Table 5c. Qualitative Risk Assessment

<table>
<tr><td>Source-</td><td colspan="3">Historical commercial site use.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-4</td><td>Exposure to harmful vapours, hazardous ground gas and tainting of water supply.</td><td>Receptor-</td><td>Neighbouring residents on nearby properties.</td></tr>
<tr><td colspan="4" rowspan="3">Site neighbours are potentially at risk from any migrating contamination from the site. The presence of residential properties 80m to the north of the site represents a sensitive potential receptor for contamination.

Theoretically it is possible that contaminants and their vapours may gain entrance through cracks or service ducts and potentially may lead to the tainting of water supply pipes. Any such impact may be capable of causing harm to human health.

However, given the perceived low risk of gas generating deposits on the site, this hazard is considered minor.</td><td>Unlikely</td><td>Mild</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Very Low risk</td></tr>
</table>

Table 5d. Qualitative Risk Assessment

<table>
<tr><td>Source-</td><td colspan="3">Historical commercial site use.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-5</td><td>Direct contact, inhalation and ingestion.</td><td>Receptor-</td><td>Site users in landscaped areas.</td></tr>
<tr><td colspan="4" rowspan="3">Potentially contaminative material used as fill from the historical development of the site may become exposed during future redevelopment. Considering the absence of a significant source at the site and the installation of landscaping into the proposed development, any exposure is unlikely to be significant or likely.</td><td>Low Likelihood</td><td>Mild</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Low risk</td></tr>
</table>

Table 5e. Qualitative Risk Assessment

<table>
<tr><td>Source-</td><td colspan="3">Infill of canal 50m west of the site and Stairfoot Landfill 100m east of the site.</td><td rowspan="2">Probability</td><td rowspan="2">Severity</td></tr>
<tr><td>Pathway-8</td><td>Exposure to harmful vapours, hazardous ground gas and tainting of water supply.</td><td>Receptor-</td><td>Current and future site users, principally within future buildings onsite.</td></tr>
<tr><td colspan="4" rowspan="3">It is possible that vapours and gases associated with the infill of the canal and Stairfoot landfill may migrate onto the site and gain entrance through cracks or service ducts and potentially may lead to the tainting of water supply pipes. Any such impact may be capable of causing harm to human health.</td><td>Likely</td><td>Medium</td></tr>
<tr><td colspan="2">Classification</td></tr>
<tr><td colspan="2">Moderate risk</td></tr>
</table>

Table 5f. Qualitative Risk Assessment

Table 6 overleaf summarises the relative significance of each contaminant linkage and which are deemed to present a potentially significant hazard (PSH). These linkages should be considered for further assessment or remedial works in order to mitigate these identified risks. Those without the potential to cause significant harm will not be considered any further.

Linkage No.	Source	Pathway	Receptor	PSH?
1	Historical commercial site use.	Leaching to groundwater followed by migration within the aquifer.	Surface waters – 143m to the north-west of the site.	×
2			The Secondary-A Aquifer as a resource.	×
3		Exposure to harmful vapours, hazardous ground gas and tainting of water supply.	Current and future site users, principally within future buildings onsite.	×
4			Neighbouring residents on nearby properties.	×
5		Direct contact, inhalation and ingestion.	Site users in landscaped areas.	×
6	Infill of canal 50m west of the site and Stairfoot Landfill 100m east of the site.	Exposure to harmful vapours, hazardous ground gas and tainting of water supply.	Current and future site users, principally within future buildings onsite.	✓

Table 6. Summary of Qualitative Risk Assessment

7.0 Conclusions

7.1 Summary

A desk study was conducted on the site formerly occupied by The Black Bull Hotel, 39 Grange Lane, Barnsley, S71 5AE. The purpose of the investigation was to assess the potential for a risk to be posed to human health and sensitive environmental receptors from historical and current use of the site and surrounding area.

The site history indicates that the site has some small buildings within the boundary that encroached from offsite to the south. The buildings to the south were demolished around 1977 and the site was redeveloped in 1990. The Black Bull Hotel was then demolished in 2019.

Onsite current and historical activities are not considered likely to present a significant source of land contamination.

In addition, the nearby infill of the canal and Stairfoot landfill site are considered to be main contaminative landuses which may have had the potential to impact upon site.

The risk to human health is considered **low/moderate,** the risk posed to controlled waters and the environment is considered to be **low**.

7.2 Recommendations

On the basis of the Phase I Desk Study, Geo^2 recommend the following:

- Further characterisation would be recommended to assess potential gas risks to the site. During such works, it would be prudent to obtain site specific details to provide additional confidence regarding current ground conditions.

- Appropriate guidance should be sought during any redevelopment works and a watching brief should be followed.

- Whilst undertaking any redevelopment work, it is also recommended that an appropriate site-specific health and safety assessment should be made.

- Given the findings of the Consultants Coal Mining Report, it may be prudent to seek appropriate technical guidance on historic coal mining activity in the area prior to redevelopment.

8.0 Limitations

Geo^{2}s' conclusions, recommendations and opinions are based on information gathered at the time of the study from a variety of third party sources.

A portion of this report is based solely upon information provided by third parties. The information has not been independently verified by Geo^2. Whilst this report and the opinions given in it are accurate to the best knowledge of Geo^2, Geo^2 cannot guarantee the completeness or accuracy of any descriptions, opinions or conclusions based solely upon information that has not been independently verified.

The recommendations contained within this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted industry practices and hydrological and engineering practices at this time. As such they are not a guarantee that the site is free of hazardous materials or conditions.

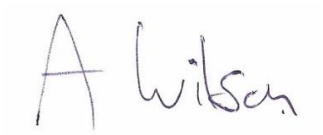
Geo^2 prepared this report for our Client; any third parties using this report do so entirely at their risk. Geo^2 makes no warranty or representation whatsoever, express or implied, with respect to the use by a third party of any information contained in this report or its suitability for any purpose. Geo^2 assumes no responsibility for any costs, claims, damages or expenses (including any consequential damages) resulting from the use of this report or any information contained in this report by a third party.

This report was prepared by



Sebastian Gledhill — 28.10.2020 Date

This report was reviewed by



Adam Wilson — 28.10.2020 Date

9.0 References

British Standards Institute

BS10175:2011 “Investigation of potentially contaminated land sites – code of practice”

British Geological Society

Geology of Britain Viewer

Desk Study Data

Envirocheck Report

Envirocheck Historical Maps

Coal Authority Report

Environment Agency

Environment Agency, Land Contamination Risk Management (LCRM) Guidance, 2020

What’s in your backyard – online

Zetica UXO Risk Map - online

Appendix A

Figures



Figure 1 - Site Location

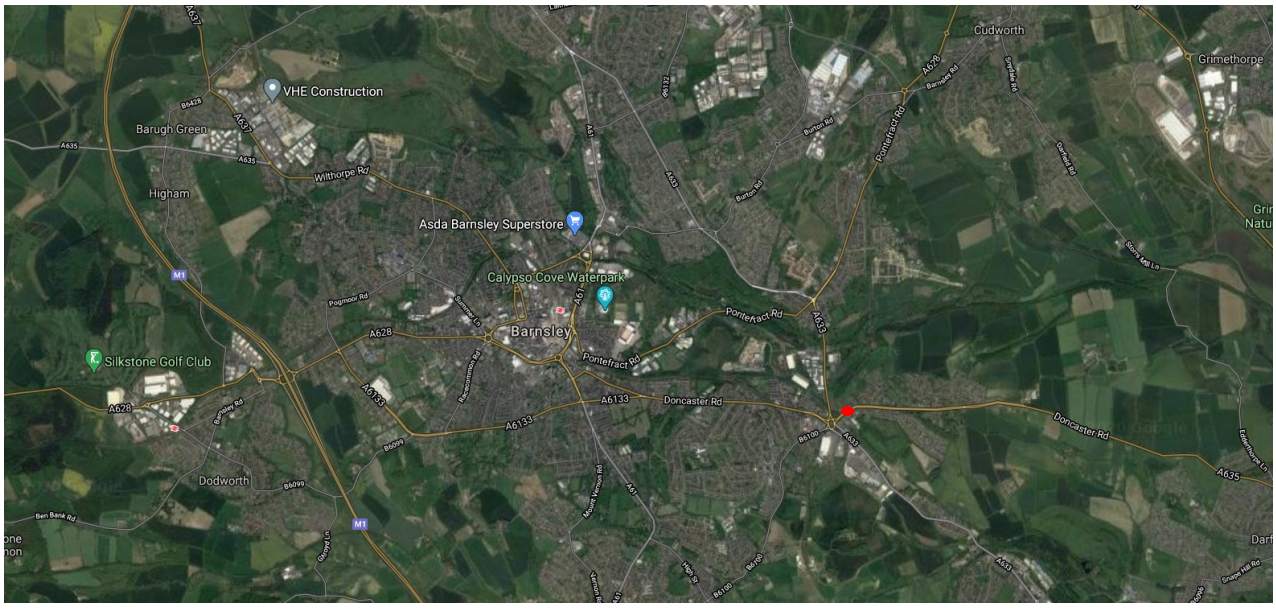


Figure 2 - Site Location

Ref: http://
www.natureonthemap.naturalengland.org.uk

Figures 1 & 2 Site Location -
Black Bull Hotel, 39 Grange Lane, Barnsley, S71 5AE

Geo² Remediation Limited, The Coniston, Louisa Street, Idle, West Yorkshire, BD10 8NE
Tel: (0113) 2575397 www.geo2.co.uk

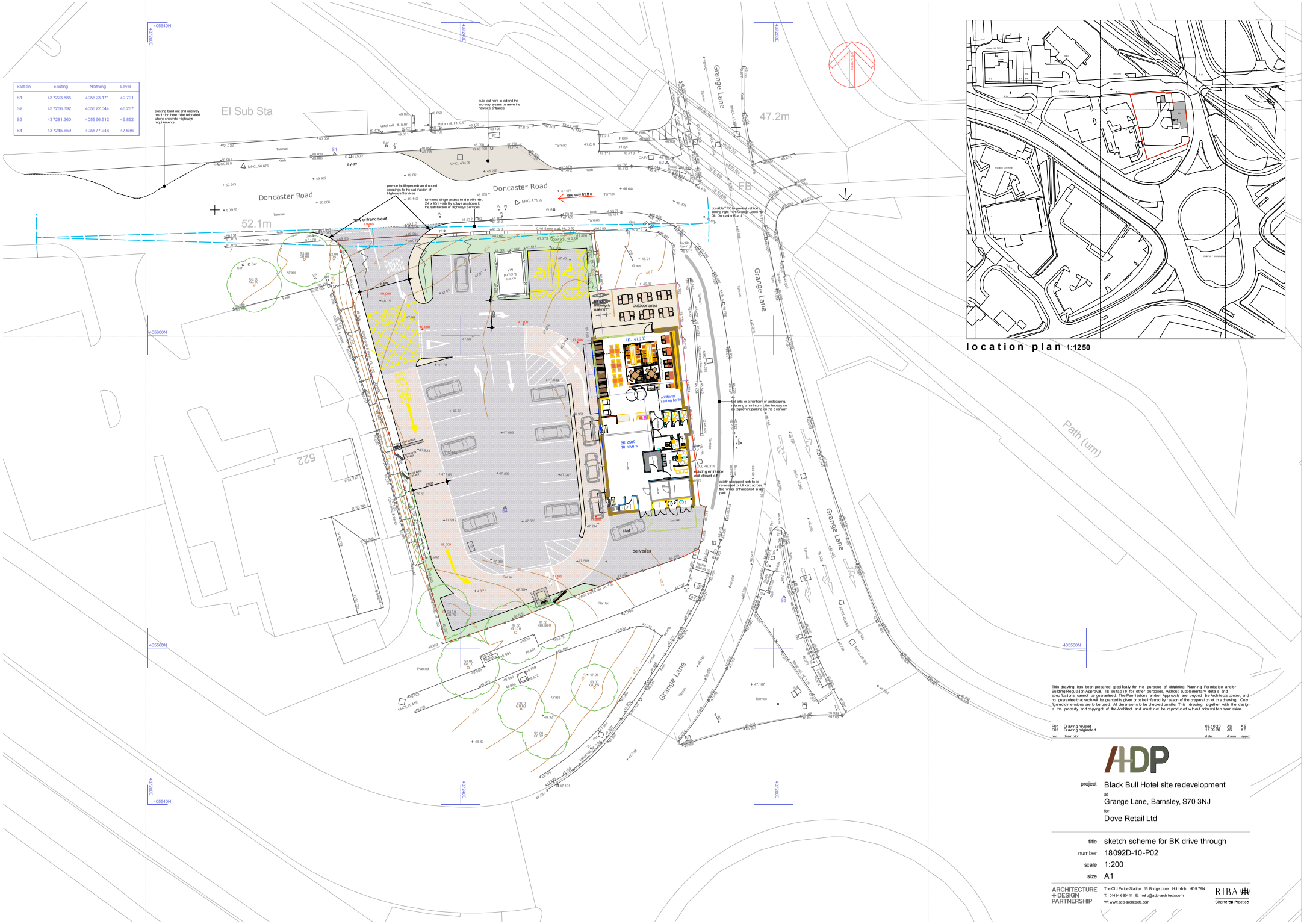


Figure 3 -Site Plan

Former Black Bull Hotel

Geo² Remediation Limited, The Coniston, Louisa Street, Idle, West Yorkshire, BD10 8NE

Tel: (0113) 2575397 www.geo2.co.uk



location plan 1:250

This drawing has been prepared specifically for the purpose of obtaining Planning Permission and/or Building Regulation Approval. Its suitability for other purposes, without supplementary details and specifications cannot be guaranteed. The Permissions and/or Approvals are beyond the Architects control, and no guarantee that such will be granted is given or to be inferred by reason of the preparation of this drawing. Only figured dimensions are to be used. All dimensions to be checked on site. This drawing together with the design is the property and copyright of the Architect and must not be reproduced without prior written permission.

rev	description	date	drawn	apprvd
P01	Drawing revised	08.10.20	AS	AS
P01	Drawing originated	11.09.20	AS	AS

project: Black Bull Hotel site redevelopment
at: Grange Lane, Barnsley, S70 3NJ
for: Dove Retail Ltd

title: sketch scheme for BK drive through
number: 18092D-10-P02
scale: 1:200
size: A1

ARCHITECTURE + DESIGN PARTNERSHIP
The Old Police Station 16 Bridge Lane Holmfirth HD9 7AN
T: 01484 685411 E: hello@adp-architects.com
W: www.adp-architects.com
RIBA Chartered Practice

Appendix B

Site Walkover Photolog

1073 – Former Black Bull Hotel – Photographic Survey 1

Image 1:
Site Entrance.



Image 2:
Site Entrance.



Image 3:.
Hardstanding and parking bays to south of site.



Image 4:
Hardstanding and parking bays to south of site.



Image 5:
Hardstanding and parking bays to south of site.



Image 6:
Parking bays looking north.



1073 – Former Black Bull Hotel – Photographic Survey 2

Image 7:
Manhole covers in parking bays.



Image 8:
Fencing along southern site boundary.



Image 9:.
North-western site area, softstanding cover.



Image 10:
Fencing along western boundary.



Image 11:
North-eastern site corner and buried services sign.



Image 12:
Buried services sign.



1073 – Former Black Bull Hotel – Photographic Survey 3

Image 13:
Water pumping station to north of the site.



Image 14:
Water pumping station to north of the site.



Image 15:.
Wall along northern site boundary.



Image 16:
Area of former hotel building.



Image 17:
North-east corner of site, former building area.



Image 18:
North-east corner of site, former building area.



1073 – Former Black Bull Hotel – Photographic Survey 4

Image 19:
Area of former hotel building.



Image 20:
Fenced off soils.



Image 21:.
Fenced off soils.



Image 22:
South-eastern corner of site.



Image 23:
Substation 20m north of site.

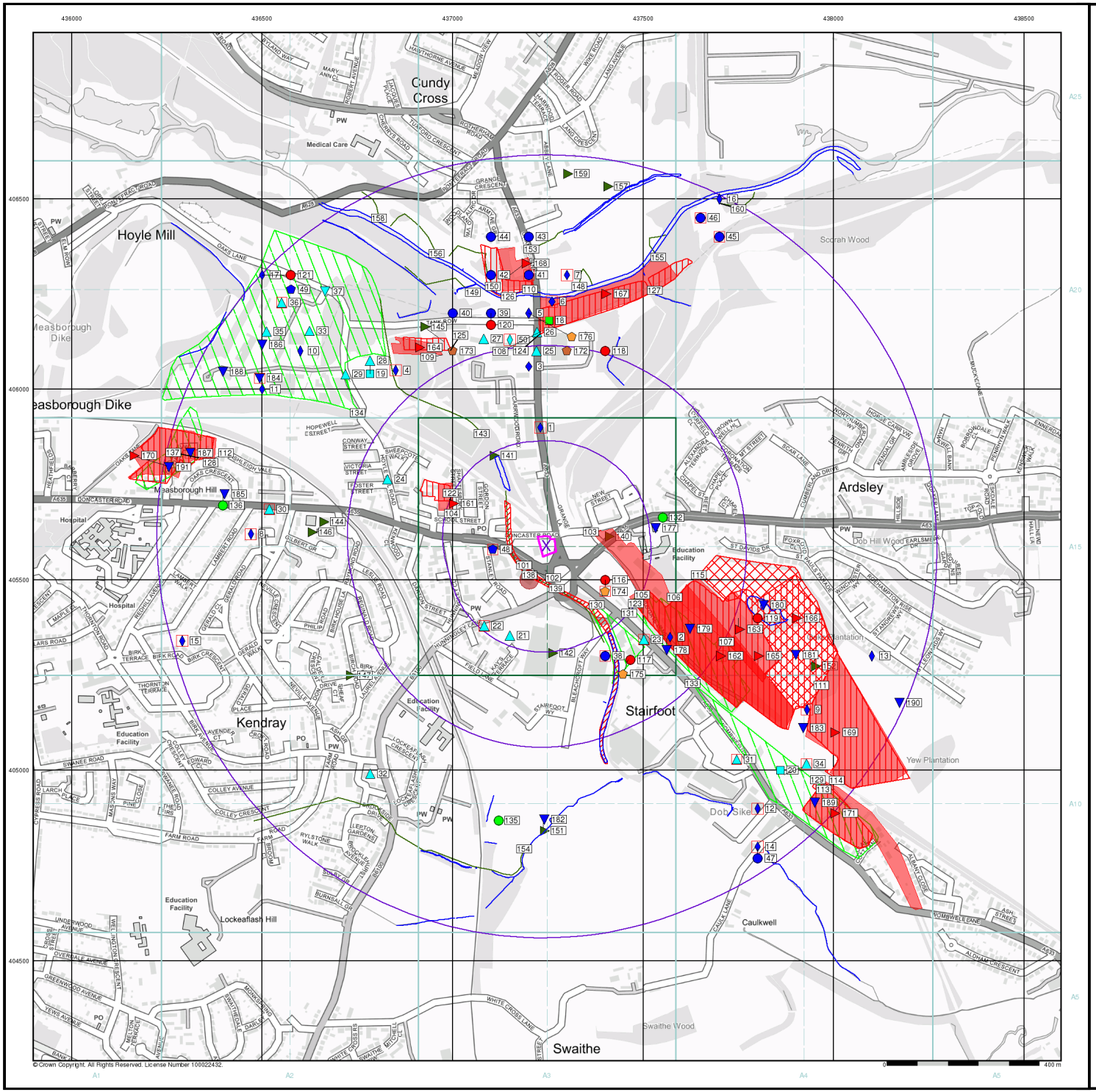


Image 24:
Substation 20m north of site.



Appendix C

Desk Study Data



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Envirocheck®

LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

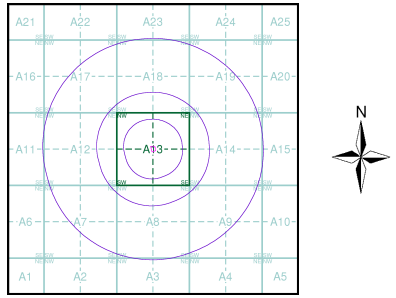
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

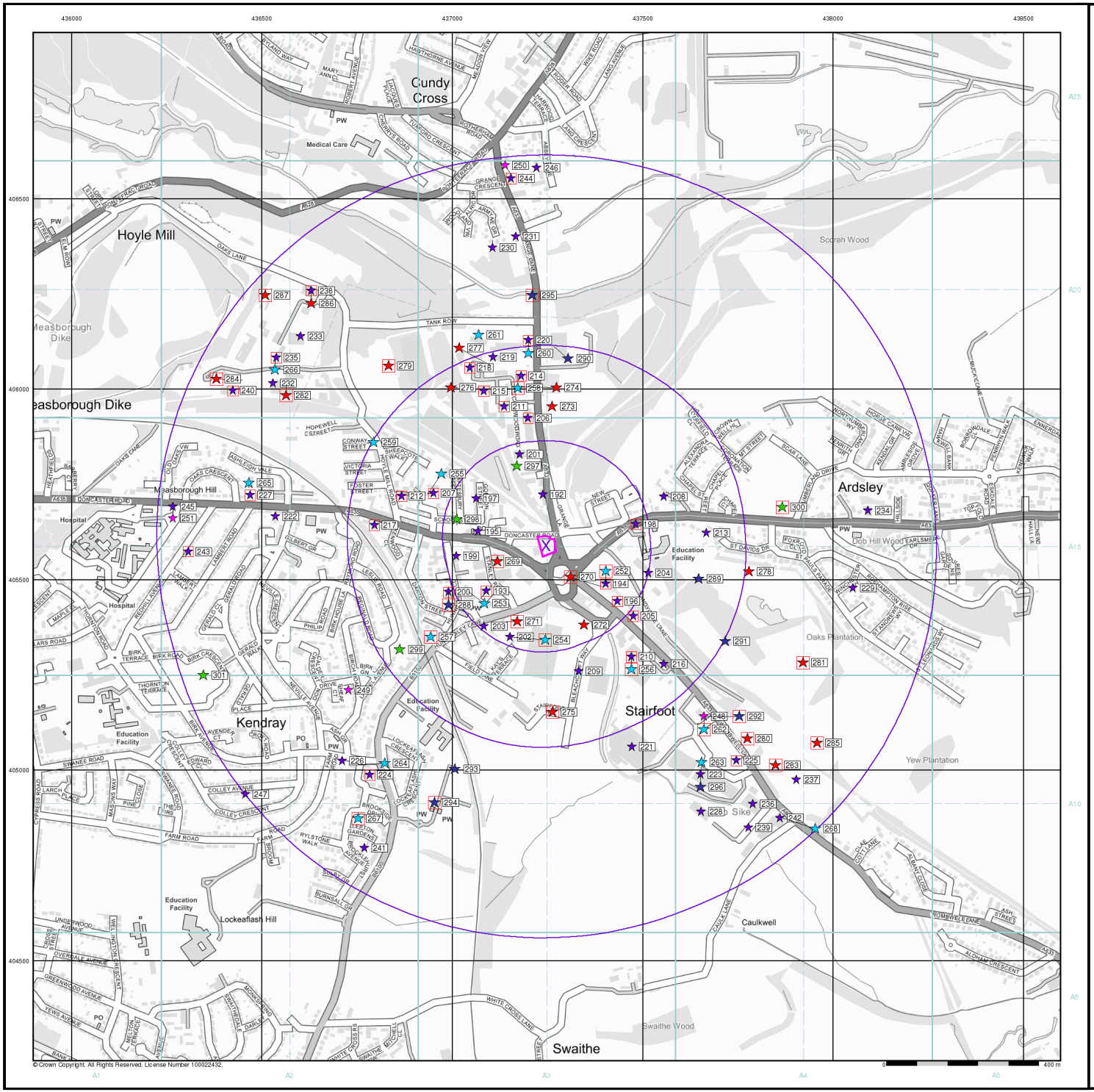
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Slice:	A
Site Area (Ha):	0.18
Search Buffer (m):	1000

Site Details

39, Grange Lane, BARNSLEY, S71 5AE

Landmark® INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Industrial Land Use Map

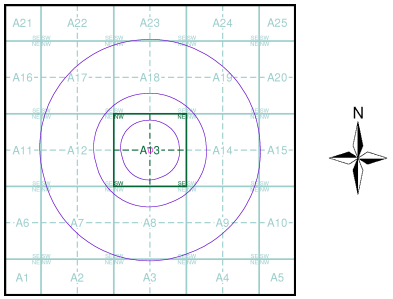
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice
Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



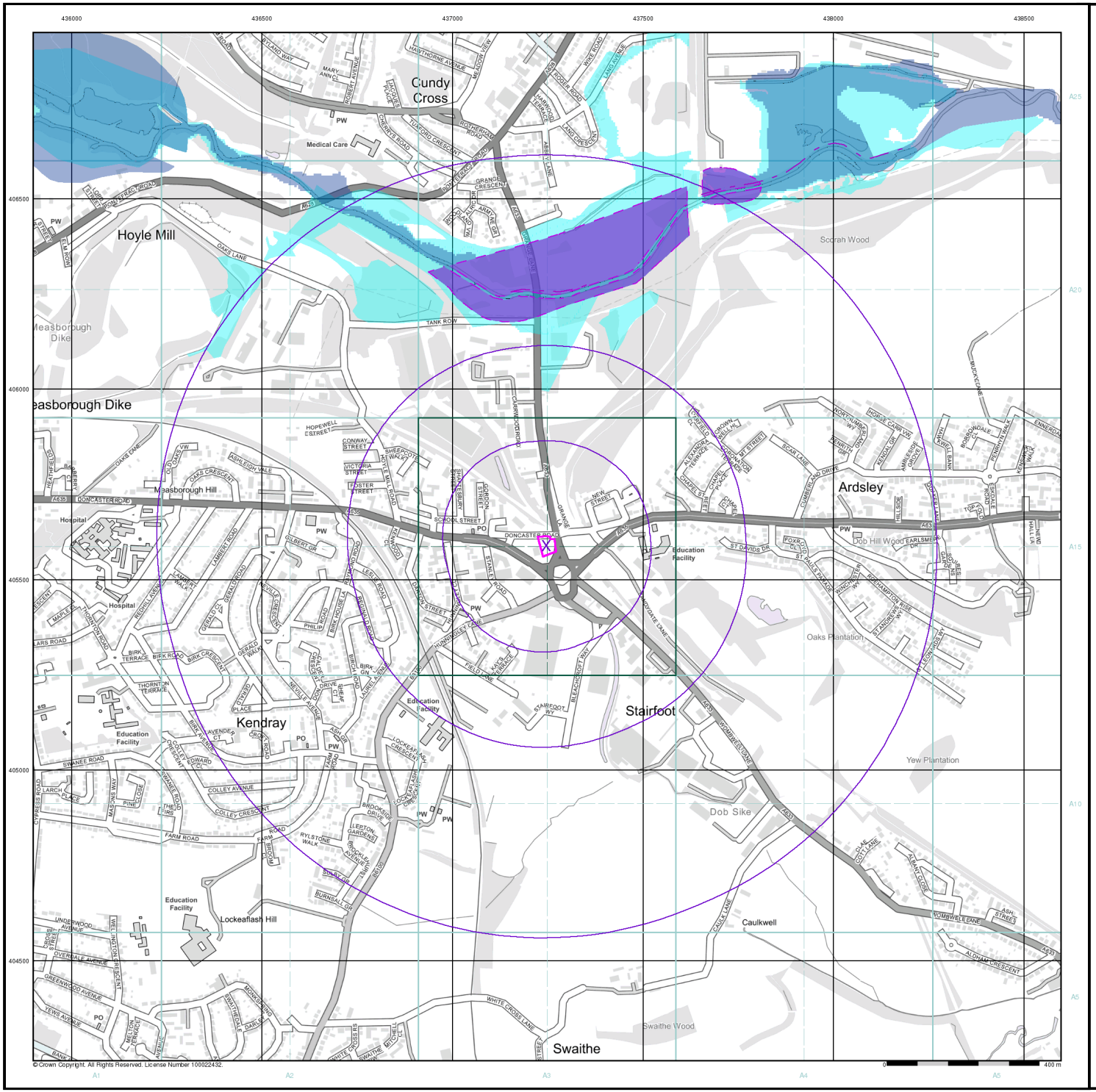
Order Details

Order Number:	262753548_1_1
Customer Ref:	1073
National Grid Reference:	437250, 405590
Slice:	A
Site Area (Ha):	0.18
Search Buffer (m):	1000

Site Details

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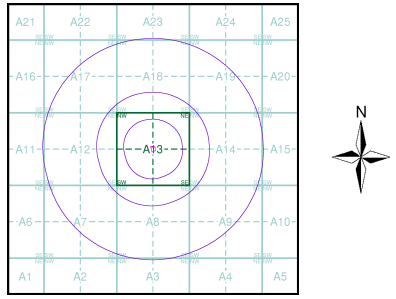
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

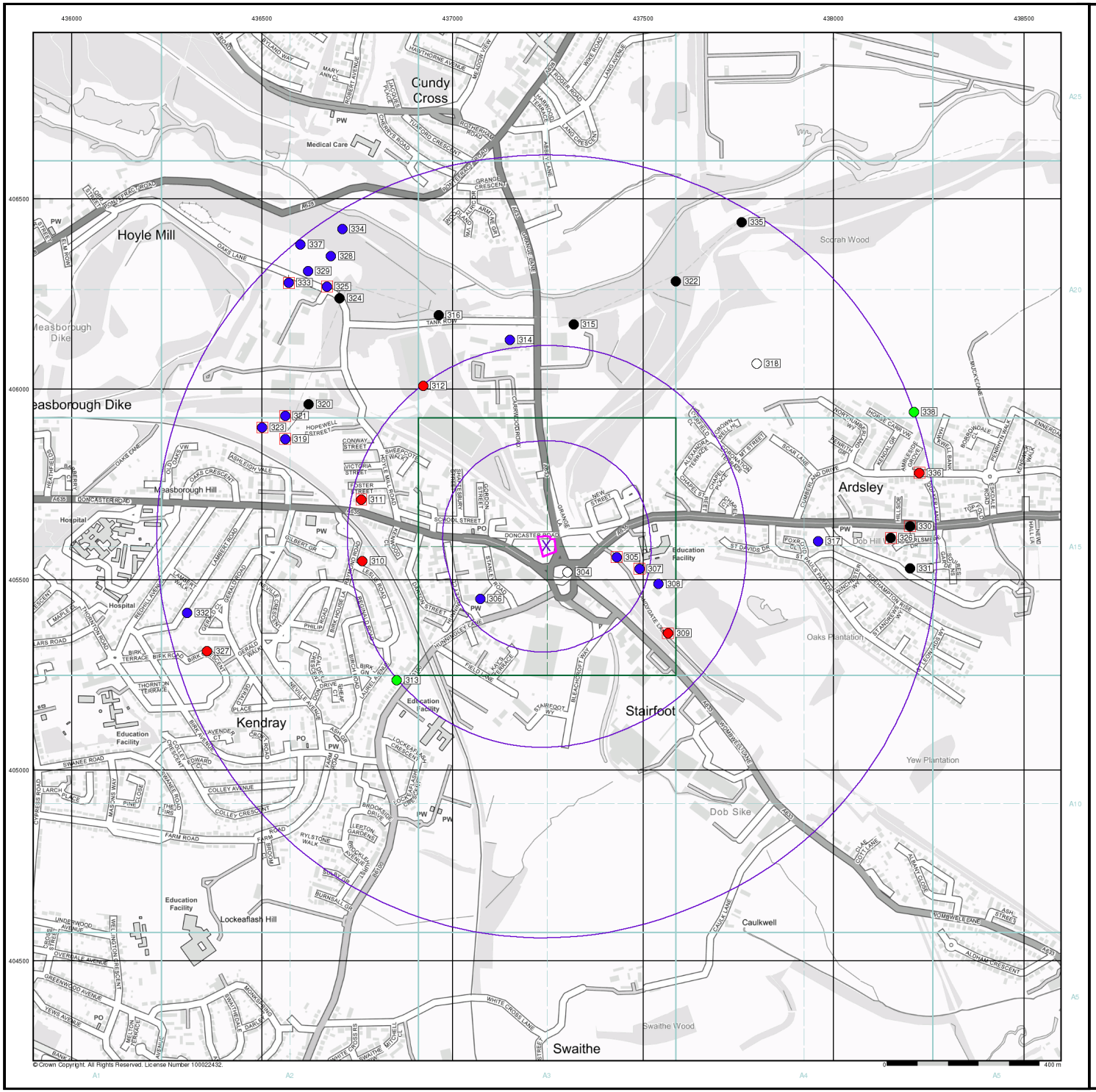
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Site Area (Ha):	0.18
Search Buffer (m):	1000

Site Details

39, Grange Lane, BARNSLEY, S71 5AE

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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

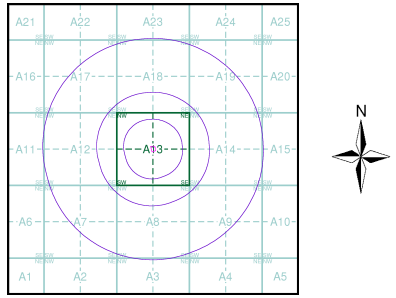
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

Order Number:	262753548_1_1
Customer Ref:	1073
National Grid Reference:	437250, 405590
Slice:	A
Site Area (Ha):	0.18
Search Buffer (m):	1000

Site Details

39, Grange Lane, BARNSLEY, S71 5AE

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