REPORT C8520
SEPTEMBER 2019

PRELIMINARY APPRAISAL (DESK STUDY) & COAL MINIG RISK ASSESSMENT

of land at
EASTFIELD FARM,
THURGOLAND, BARNSLEY

prepared for
MR & MRS MILLER

QA Sheet

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EXECUTIVE SUMMARY

Introduction	Sirius Geotechnical Ltd (Sirius) was commissioned by the Group Ginger, on behalf of Mr and Mrs J. Miller, to undertake a preliminary appraisal report (desktop study) and coal mining risk assessment of Eastfield Farm, located to the south of Eastfield Lane, Thurgoland, Barnsley (the 'site'). It is understood that consideration is being given to the renovation of the former farmhouse on site and conversion of the associated outbuildings and barns into two further residential properties; the two barns present in the east of the site are to be retained for agricultural use.
Site Details	The site is irregularly shaped, covering an area of c.0.4 hectares, and is occupied by a farmhouse with associated barns and outbuildings. An above ground fuel storage tank, set on a concrete platform (c. 1.5m above ground level) constructed on block work. is present within the central southern part of the site. It is understood that a former well is present in the southern central part of the site. The well is currently covered with concrete hardstand and it is unknown whether the feature has been infilled.
Site History	Review of historical Ordnance Survey mapping indicates that the site has been developed with a farmhouse and associated buildings since at least 1855. The site is within a generally undeveloped agricultural area, although historical coal mining has been undertaken within the local area.
Anticipated Ground Conditions	Localised made ground over sandstone of the Pennine Lower Coal Measures Formation. The Silkstone Four Foot Coal Seam outcrops c. 60m to the south west of the site, dipping to the north east beneath the site.
Coal Mining Risk Assessment	The Coal Authority's records state that there are probable shallow mine workings below the site. On this basis, it is considered that should the shallow coal seam underlying the site prove to have been worked, then a potential risk to the surface stability exists at the site. If mine workings are proven within influencing distance of the surface as part of a rotary investigation, they will require to be consolidated through rotary drilling and pressure grouting, in accordance with Ciria Special Publication 32 "Construction over abandoned mine workings". Although no recorded mineshafts are considered to be located within, or within 20 metres of the site, the possibility of encountered unrecorded mine entries (including bell pits and crop workings) within the site cannot be discounted. It is recommended that all excavations be examined for evidence of mine shafts / crop workings / pits.
Preliminary Foundation Assessment	The type and depth of foundations used for new buildings will be dependent on the detailed site geology, including thickness / nature of made ground, competence of underlying drift, depth to bedrock, presence/absence of shallow mine workings, and groundwater level, and, in addition, loads. At this stage, it is anticipated that spread foundations (i.e. strip/ trench fill) could be feasible for any new buildings on-site bearing upon sandstone bedrock or associated residual deposits of suitable strength and density. The suitability of the existing foundations will be dependent on the dimensions and depth of the footings, the strength/bearing capacity of the supporting strata and proposed loads. The existing foundations (including floor slab) and supporting ground should be evaluated through a structural assessment and ground investigation.

	If shallow mine workings are proven within influencing distance of the surface, these will need to be treated; additionally foundations may need to be designed to accommodate risk posed by residual movement. Foundation design will depend upon the depth to treated workings. It is recommended that an intrusive ground investigation be undertaken to confirm ground conditions and foundation requirements.
Contamination and Gas Risk	The preliminary conceptual site model indicates that pollutant linkages are possible to a variety of receptors. Locally potential heavy metals, PAHs, petroleum hydrocarbons and asbestos fibres within made ground / natural soils may pose potential risks to human health (construction workers, adjacent land users and site end-users), controlled waters (groundwater within the underlying Secondary A Aquifer) and construction materials (including underground services). Risks related to these potential linkages are currently considered to be low to moderate. However, it is understood that as part of the development works levels are likely to be reduced, and therefore the proposed development itself is likely to result in the excavation and removal of the made ground and shallow natural soils, and therefore any associated sources of contamination. There is a low to moderate risk to receptors at the site from potential sources of hazardous ground gases. The Envirocheck report for the site states that 'no radon protective measures are required'. The precise nature of the risks should be investigated further through intrusive site investigation, laboratory analysis and gas monitoring.
Further Works	The following ground investigation works are recommended to allow foundation design, determination of potential contamination constraints, and abnormal costs, in relation to the proposed development: • Trial pitting and/or window sample drilling across the site to investigate near-surface soil and groundwater conditions, and to allow recovery of soil samples for chemical and geotechnical testing; • Rotary open hole boreholes to confirm determine the presence/absence of workable coal at shallow depth; • Installation of gas / groundwater monitoring boreholes within selected boreholes; • Ground gas monitoring; • Geotechnical and contamination testing; • Reporting. Intrusive ground investigation works should be carried out by a suitably qualified geoenvironmental consultant. An invasive plant species survey should be undertaken to identify the presence of such species within and adjacent to the site, and their implication. It is recommended that a structural engineer is instructed to assess the suitability of the existing buildings and their foundations, for a residential end-use.

The executive summary is an overview of the key findings and conclusions of the report. There may be other information contained in the body of the report which puts into context the findings of the executive summary. No reliance should be placed on the executive summary in isolation, particularly when deriving design detail/abnormal costs.

1. INTRODUCTION

Sirius Geotechnical Ltd (Sirius) was commissioned by Group Ginger, on the behalf of Mr and Mrs J. Miller to undertake a preliminary appraisal report (desktop study) and coal mining risk assessment of Eastfield Farm, located to the south of Eastfield Lane, Thurgoland, Barnsley (the 'site').

It is understood that consideration is being given to the renovation of the former farmhouse on site and conversion of the associated outbuildings and barns into two further residential properties; the two barns present in the east of the site are to be retained for agricultural use. The development proposal is shown on the Proposed Site Plan produced by Group Ginger (Drawing No. PL(01)102), included in Appendix A.

At the time of writing development levels or anticipated loadings were not available, although it is understood that levels in the eastern and central parts of the site are to be reduced by up to c.1.5m and 1m from existing, respectively. In addition, it is assumed that the development will include alterations to existing buildings, with continued use of the existing foundations, with a degree of new build (not exceeding two storeys) where existing buildings are considered structural unsound.

The objectives of this appraisal were to:

- Establish the historical development of the site and surrounding area from a review of available historical Ordnance Survey (OS) maps;
- Establish the environmental setting of the site;
- Determine whether historical activities could give rise to significant ground contamination;
- Evaluate whether past mining or other extractive industries could have an influence on the site;
- Determine the potential risk to the development from hazardous ground gas sources, including radon;
- Provide, where possible, provisional recommendations for foundations for proposed new buildings, and measures to deal with potential contamination; and

- Provide recommendations for intrusive works required to confirm the ground conditions below the site and the contamination status of the shallow soils, and from this, foundation solutions for any proposed new build and measures to deal with identified contamination.

This investigation includes an assessment of information provided by Landmark Information Group (Envirocheck® Report), the British Geological Survey (BGS), and the Coal Authority (CA).

A site inspection (walkover survey) was undertaken by a Sirius geoenvironmental engineer on 12th September 2019.

This report presents and interprets the factual information reviewed during this appraisal and presents a Preliminary Conceptual Site Model (PCSM) from which ground-related hazards and risks have been assessed.

It has been assumed in the production of this report that the site is to be redeveloped for a low rise "residential with home-grown produce" end use, with the far eastern part to be retained for agricultural use. In addition it has been assumed that site levels will generally remain as existing with the exception of the eastern and central parts which are to be reduced by up to 1.5m and 1m, respectively. If these are not the case, then amendments to the recommendations made in this report may be required.

Where the report refers to the potential presence of invasive plants or asbestos containing materials (ACMs), such observations are for information only and should be verified by an appropriate specialist.

This report has been prepared for the sole use of Mr and Mrs J. Miller. No other third party may rely upon or reproduce the contents of this report without the written approval of Sirius. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview

Location	The site is located to the south of Eastfield Lane, Thurgoland, approximately 5.9km southwest of Barnsley City Centre. A site location plan is provided as Drawing No. C8520/01 within Appendix A.
National Grid Reference	429860, 402740
Topography and Features	The site is irregularly shaped, comprising an existing farmhouse, with associated barns and outbuildings. Access to the site can be gained from Eastfield Lane. The site and the surrounding area generally slope to the southeast, levels on-site vary between c. 181m AOD in the north west and c. 173m AOD in the south east. In the northeast of the site a steel framed barn is present, with sections of concrete block walling, clad with a mixture of wooden and suspected asbestos cement sheeting, and roofed with asbestos cement sheeting. In the southeast of the site a wooden framed barn building is present, with a concrete block retaining wall on its northern boundary and is roofed with suspected asbestos cement sheeting. In the central part of the site, a two storey farmhouse and associated barns are present around a central concrete surfaced courtyard. The farmhouse and barns are predominantly stone built with slate roofs. At the time of the site walkover survey the farmhouse and barns were unoccupied/empty, with the exception of the most north western barn where a 205 litre oil drum and several 25 litre oil cans were being stored. An outbuilding, which has partially collapsed, is present to the immediate southeast of the farmhouse, with an above ground fuel storage tank (AST) on its eastern gable wall. The AST was set on a concrete platform (c. 1.5m above ground level), constructed on block work. It is understood that a former well is present in the southern central part of the

	courtyard area. The well is currently covered with concrete hardstand and it is unknown whether the feature has been infilled. The far western part of the site comprises an area of undulating, grassland with a c. 4m diameter, 8m tall silo present in the north western corner.
Site Area	Approximately 0.40 hectares.
Site Boundaries and Surrounding Land Uses	The site is bound to the north by Eastfield Lane, with undeveloped agricultural land beyond. The site is bound to the east, south and north by undeveloped agricultural land. A concrete slab, with approximate dimensions of 1.5m by 2.5m, was noted immediately to the south of the site and is understood to be the cover to a cess pit.
Invasive Plant Species	None noted during the site walkover survey. An ecological survey should be carried out to confirm if any invasive plant species are present, and any treatment required.
Asbestos Containing Materials	RB Asbestos Consultants have undertaken an asbestos survey for the site, which identified asbestos containing materials (ACM) within the infrastructure of buildings on-site and will require appropriate management or disposal of by a suitably qualified contractor. A copy of the report is included within Appendix D.

Key site features and selected photographs of the site are shown on the Site Features Plan, Drawing No. C8520/02, within Appendix A.

3. ENVIRONMENTAL SETTING

3.1. Introduction

Published environmental, geological and historical data relating to the site has been reviewed. A summary of relevant information is provided below, and a copy of the Envirocheck Report is enclosed in Appendix B.

3.2. Site History

Table 3.1 presents a summary of the site history from 1855 to date as determined from historical OS maps and Google Earth imagery. It is not the intention of this report to describe in detail all the changes that have occurred on, or adjacent to, the site, only those pertinent to the proposed development.

Table 3.1 Site History

Map Dates	On-Site Features	Offsite Features (only features within 500m that may affect the site are listed)
1855	The site is named as Lower East Field, with a building developed in the northwest quarter of the site.	Hill Top Colliery is shown c. 120m to the northwest of the site. Bagger Wood Dike, flowing to the north east, is shown c. 150m to the south of the site. East Field Colliery is shown from 220m to 265m south of the site. A number of small coal pits are shown in the same area and to the southwest of the site. An "Old Quarry (sandstone)" is annotated c.200m to the north of the site. A series of Coke Kilns are shown c. 360m to the south of the site. The surrounding area comprises agricultural land use.
1892-1907	The configuration of the buildings and the courtyard, within the central part of the site, appears to be similar as exist at present. A pump/well is noted in the central part of the site. The site is named as Lower Eastfield Farm.	Hill Top Colliery, East Field Colliery, the associated coal pits and Coke Kilns are no longer shown. Two small ponds are shown c. 40 and c. 115m to the west of the site. An "old shaft" is shown c. 380m southwest of the site in the area of a former coal pit, on the 1906 – 1907 mapping. An unnamed colliery with an associated shaft is shown c. 480m to the north of the site, on the 1906 – 1907 mapping.

Map Dates	On-Site Features	Offsite Features (only features within 500m that may affect the site are listed)
1931-1932	A single building has been built in the eastern half of the site, within the footprint of the existing barn.	The unnamed colliery is no longer shown, and an "old shaft" is noted in its vicinity.
1955-1965	Well no longer shown from 1960..	A disused shaft is shown c. 230m to the north of the site on the 1960 mapping.
1984-2000	New buildings have been built in the northwest and southeast of the site. The single building in the eastern half of the site has been extended. The existing silo is evident in the north western part of the site.	No significant changes noted.
2019	No significant changes noted on-site.	The pond c. 40m to the west of the site is no longer shown.

In summary, it would appear that the site has been developed since at least 1855 and the existing configuration of buildings were established sometime between 1965 and 1980. The site is within a generally undeveloped agricultural area, although historical coal mining has been undertaken within the local area.

3.3. Published Geological Information

A summary of available published geological information is provided in Table 3.2.

Table 3.2 Geological Summary

Sources of Information	BGS 1:50,000 scale geological map (Barnsley Sheet 87), Solid and Drift Edition, 2008. BGS 6 inches to one-mile scale geological map (Yorkshire Sheet 282), 1936. BGS Open Geoscience website, including borehole scans and lexicon. Coal Authority (CA) Interactive Map Viewer. Envirocheck Report, Ref: 218262450_1_1, dated 17th September 2019. Coal Mining Report, Ref: 51002170608001, dated 17th September 2019.
Made Ground	None recorded on published geological maps. However, the site has been developed from at least the mid-1800s, so areas of made ground are likely to be present on-site.

Superficial Deposits	No superficial deposits are shown to underlie the site. Residual deposits associated with the underlying bedrock maybe present on-site.
Solid Geology	The geological maps show that the site is underlain by sandstone of the Pennine Lower Coal Measures Formation. Strata in the local area are shown to be dipping between 5 and 10^{o} to the east / northeast. The Silkstone Four Foot Coal Seam is shown to outcrop c. 60m to the south west of the site, with a recorded seam thickness of 0.0 to 1.6m. No faults are shown to affect the site
BGS Borehole Records	There are no records of BGS or other exploratory holes drilled / excavated specifically within, or within 250m of, the site.
Coal Mining	The site is recorded by the CA to be located in a development high risk area. The risk from coal mining is discussed further in Section 3.4.
Quarrying	There are seven BGS recorded mineral sites within 500m of the property, six of which refer to (deep) coal mining. One site, located 214m to the north of the property, relates to the opencast extraction of sandstone from Tom Royd Wood. The site is shown to be ceased.
Potential Ground Stability Hazards	The Envirocheck report contains data from the BGS relating to the potential for various ground stability hazards to be present in the area. Of those that relate to the site, all are classified as 'No Hazard or Very Low'.

3.4. Coal Mining Risk Assessment

The following table summarises the potential risks associated with coal mining legacy for the proposed development: A copy of the CA Mining Report is provided within Appendix C.

Table 3.3 Potential Risks Associated with Coal Mining Legacy

Coal Mining Issue	Yes	No	Risk Assessment
Underground Coal Mining (recorded at shallow depths)	✓		The CA notes that, 'The property is in a surface area that could be affected by underground mining in 2 seams of coal at 40m to 90m depth, and last worked in 1963'.

Underground Coal Mining (probable at shallow depth)	✓		The 6 inches to one-mile scale geological map shows that the Silkstone Four Foot Coal Seam outcrops c. 60m to the south west of the site, dipping to the north east beneath the site. The CA's Interactive Map Viewer, based on current mapping, shows that the site is located within an area of probable shallow coal mine workings. Probable shallow coal mining refers to the location and estimated extents of shallow underground workings for which no recorded plans exist, but where it is likely that workable coal at shallow depths has been mined before records were kept. Hill Top Colliery was historically located c. 120m to the northwest of the site, but appears to have closed by 1984 at the latest.
Mine entries (shafts and adits)		✓	None recorded on, or within 20 metres of, the site, although as the CA records may be incomplete there may be entries of which they have no records and the possibility of unrecorded entries cannot be completely discounted. A disused shaft is shown around 230m to the north of the site on the historical maps from 1960, no other shafts are shown within 250m of the site.
Coal mining subsidence		✓	The CA has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31st October 1994.
Record of past mine gas emissions		✓	There is no record of a mine gas emission requiring action by the CA within the boundary of the property.
Recorded coal mining surface hazard		✓	The CA states that the property has not been subject to remedial works by, or on behalf of, themselves, under its Emergency Surface Hazard Call Out procedures.
Surface Mining (opencast workings)		✓	The CA indicate that the property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Historical OS Map Assessment

As discussed in section 3.2 the site has remained in use as a farm since the first historical map until present day and no mining features (e.g., shafts, collieries, spoil heaps, etc.), are visible within 100m of the site on the historical maps reviewed.

3.5. Hydrology and Hydrogeology

A summary of available information pertaining to hydrology and hydrogeology is presented in Tables 3.4, 3.5 and 3.6.

Table 3.4 Surface Water Features

	Presence/location	**Comments**
EA GQA Classified Watercourses (within 1km)	There are no GQA classified watercourses recorded within 1km of the site.	
Unclassified Watercourses (within 500m)	Bagger Wood Dike is located c.150m to the south of the site, flowing from south west to north east. Hollin Dike, flowing from south west to north east, is located c.400m to the north of the site.	Bagger Wood Dike and Hollin Dike form part of the "Dodworth Dyke from Source to River Dove" catchment, which is recorded by the EA to have had a good chemical and ecological classification in 2016.
Surface Water Features (Canals, Ponds, Lakes, etc.) (within 250m)	NR	
Licensed Surface Water Abstractions (within 1km)	NR	
Flood Risk Status	The site is shown to be in Flood Zone 1 and the BGS record the site to be in an area with *"limited potential for groundwater flooding of property situated below ground level".*	Zone 1 refers to a Low Probability of flooding from rivers or the sea.
Pollution Incidents to Surface Water (within 250m)	NR	

NR = None Recorded

Table 3.5 Groundwater Occurrence and Abstraction

	Presence/location	**Comments**
Licensed Abstractions (within 1km)	NR	
Well	An on-site well was identified on the historical OS mapping and during the site walkover. No information on the status of this feature has been provided to date.	
Source Protection Zones (within 500m)	According to the Envirocheck report, the site is not located within a Source Protection Zone.	

NR = None Recorded

Table 3.6 Groundwater Vulnerability Status

	Environment Agency Classification
Groundwater Classification	The bedrock beneath the site is classified as a Secondary A Aquifer, which is defined as "*having 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….*" and is noted to have a high vulnerability.

3.6. Landfilling and Waste Management

Information on landfill, waste management and related activities that could impact upon the site is summarised in Table 3.7.

Table 3.7 Waste Management Activities

	Presence / Location	**Comments**
Recorded Landfills (within 1km)	A historical landfill is located 592m southeast of the site.	The historical landfill is located at Hollin Moor Bridge, the licence was held by South Yorkshire County Council and deposited waste included industrial waste.
Licensed Waste Management Facilities (within 500m)	NR	
Evidence of Fly-Tipping on Site?	None noted during site walkover survey.	
Ground Gas Risk Assessment Required?	Yes	Potential sources of ground gas include shallow unrecorded and recorded coal workings beneath the site and surrounding area.

NR = None Recorded

3.7. Radon Risk

The Envirocheck Report states that *"the property is in a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level)"* and that *"no radon protective measures are necessary in the construction of new dwellings or extensions".*

3.8. Other

Other potentially contaminative activities or environmental constraints are listed below. The entries relate to activities within approximately 250m of the site, with the exception of COMAH facilities where the assessment is extended to a distance of approximately 1km from the site:

- An active discharge consent for sewage discharge (final / treated effluent) to land / soakaway is recorded 240m west of the site and relates to a group of domestic properties at Hill Top Farm.

- The site is within an area of Adopted Green Belt.

- The site is located within a Nitrate Vulnerable Zone.

- Ancient Woodland is located 137m northwest of the site (Tom Royd Wood) and 153m southeast of the site (Bagger Wood).

4. PREVIOUS INVESTIGATION FINDINGS

No previous ground investigation reports relating to this site have been made available to Sirius.

5. PRELIMINARY CONCEPTUAL SITE MODEL

Based on the desk study information and walkover survey observations, a preliminary conceptual site model (PCSM) has been developed, based on the most sensitive proposed future land use (residential with gardens). This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors to assess potential contaminant linkages.

A qualitative risk assessment has also been made of each contaminant linkage operating following the methodology described in Appendix E.

The preliminary CSM is presented in schematic form in Drawing No. C8520/03 in Appendix A.

In summary, the following potential contaminant linkages have been assessed as posing a potentially unacceptable level of risk (defined as being greater than 'low' risk) in the proposed end-use:

- Inhalation and ingestion of, and dermal contact with, any localised made ground or shallow natural soils in which asbestos-containing materials (ACMs; inhalation only) or elevated concentrations of metals, metalloids or organic contaminants (including hydrocarbons and PAHs more specifically associated with the AST), in addition to pesticides, herbicides or similar products are present. These linkages are assessed as posing a **low to moderate** risk to future site users, construction workers and adjacent land users;

- Leaching of metals and metalloids, other inorganics and/or organic contaminants (including hydrocarbons and PAHs) from made ground and/or shallow natural soils posing a **low to moderate** risk to controlled waters (including the underlying Secondary A Aquifer and off-site surface water features);

- Attack of construction materials (concrete and plastic) by sulphates and organic contaminants; this linkage is considered to pose a **low to moderate** risk to the built environment.

- Migration and accumulation/inhalation of ground gases (methane and carbon dioxide) in indoor air, posing a **low to moderate** risk to site end users and construction workers.

ACMs within existing buildings / infrastructure on site pose a **low** risk to construction/demolition workers and adjacent site users, providing an appropriate method of removal and disposal is undertaken.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. General

This preliminary appraisal report has been performed for land at Eastfield Farm, to the south of Eastfield Lane, Thurgoland (the “site). It is understood that consideration is being given to the renovation of the former farmhouse on site and conversion of the associated outbuildings and barns into two further residential properties; the two barns present in the east of the site are to be retained for agricultural use. The development proposal is shown on the Proposed Site Plan produced by Group Ginger (Drawing No. PL(01)102), included in Appendix A.

It has been assumed in the production of this report that the site is to be redeveloped for a low rise (not exceeding two storey) “residential with home-grown produce” end use, with the far eastern part to be retained for agricultural use. In addition, it is understood that site levels will generally remain as existing with the exception of the eastern and central parts which are to be reduced by up to 1.5m and 1m, respectively. If these assumptions are not the case, then amendments to the recommendations made in this report may be required.

6.2. Flood Risk

The site does not lie within an area at risk from surface water flooding according to current EA mapping.

6.3. Geotechnical

Mining

The CA’s records state that there are probable shallow mine workings below the site. Based on the recorded outcrop location of the Silkstone Four Foot Coal Seam and the dip of the local strata, it is anticipated that the seam will be present beneath the site at a depth of between approximately 5.0m and 12.0m bgl.

On this basis, it is considered that should the shallow coal seam underlying the site prove to have been worked, then a potential risk to the surface stability exists at the site. It is recommended that a ground investigation is undertaken to determine the presence/absence of workable coal at shallow depth, and establish the perceived risk to surface stability at the site.

If mine workings are proven within influencing distance of the surface, they will require to be consolidated through rotary drilling and pressure grouting, in accordance with Ciria Special Publication 32 “Construction over abandoned mine workings”.

Although no mineshafts are recorded within, or within 20 metres of, the site, the possibility of encountered unrecorded mine entries (including bell pits) within the site cannot be discounted. It is therefore recommended that all excavations be examined for evidence of mine entries / bell pitting. If a mine entry / bell pit is suspected works should cease and the advice sought of a suitably qualified consultant.

Inspection of historical OS plans has not revealed any evidence of quarrying or opencast workings beneath the site. However, based on BGS mapping it is evident that sandstone quarrying have been undertaken within 250m of the site.

The possibility of encountering unrecorded quarries / opencast workings cannot be discounted, albeit considered unlikely. It is recommended that all excavations be examined for evidence of infilled quarries/pits. If evidence of an infilled quarry / pit / opencast workings is suspected works should cease and the advice sought of a suitably qualified consultant.

Well

A well was noted on the historical OS plans within the southern central part of the site. During the site walkover it would appear that the well has been covered/capped with concrete hardstand. At this stage it is unknown whether the well has been infilled/treated. It is recommended that as part of the enabling/development works the location of the well is investigated in order to determine the location/condition of the well. Treatment will be dependent on the proven location/condition of the well.

Foundations

The nature and depth of foundations for any proposed new build will be dependent on loadings, development proposals / levels and the detailed site geology, including:

- Location and thickness of any made ground or reworked soils;
- Bearing capacity of the natural strata (both drift and solid);
- Groundwater levels;

- Presence/absence of workable coal within influencing distance of the surface;
- Location and extent of any relict foundations and other buried structures; and,
- Proximity to trees where potentially shrinkable soils are present.

This preliminary investigation has identified that the site is underlain by shallow sandstone bedrock and associated residual soils. At this stage, it is anticipated that spread foundations (i.e. strip/ trench fill) should be feasible for any new buildings on-site bearing upon sandstone bedrock or associated residual deposits of suitable strength and density.

The suitability of the existing foundations will be dependent on the dimensions and depth of the footings, the strength/bearing capacity of the supporting strata and proposed loads. The existing foundations (including floor slab) and supporting ground should be evaluated through a structural assessment and ground investigation.

If shallow mine workings are proven within influencing distance of the surface, these will need to be treated (see above); additionally foundations may need to be designed to accommodate risk posed by residual movement. Foundation design will depend upon the depth to treated workings.

A ground investigation is required to confirm ground conditions and foundation requirements.

Floor Slabs

Floor slab design for any conversion / new buildings will be subject to proven ground conditions, development levels and the necessity for gas protection.

6.4. Contamination

Risk Evaluation for the Proposed Land Use (Residential End Use)

The preliminary conceptual site model indicates that pollutant linkages are possible to a variety of receptors. Locally potential heavy metals, PAHs, petroleum hydrocarbons and asbestos fibres within made ground / natural soils may pose potential risks to human health (construction workers, adjacent land users and site end-users), controlled waters (groundwater within the underlying Secondary A Aquifer) and construction materials (including underground services). Risks related to these potential linkages are currently considered **low to moderate.** The precise nature of the risks should be investigated further through site investigation and laboratory analysis. However, it

is understood that as part of the development works levels are likely to be reduced, and therefore the proposed development itself is likely to result in the excavation and removal of the made ground and shallow natural soils, and therefore any associated sources of contamination.

A Phase II (intrusive) geoenvironmental / contamination investigation should be undertaken to confirm the presence or otherwise of contaminants sources and quantify the risks to identified receptors.

6.5. Asbestos

RB Asbestos Consultants have undertaken an asbestos survey for the site, which identified asbestos containing materials (ACM) are present on-site within the existing buildings. The survey recommends that the removal/disposal of all ACMs, identified in the pre-demolition asbestos survey, should be undertaken by suitably qualified and experienced operatives prior to commencing redevelopment works.

The possibility of localised fragments of ACMs within made ground or shallow soils, should not be discounted. Should any asbestos be encountered during site works, work should be immediately suspended, and advice obtained from an appropriately qualified consultant.

6.6. Ground Gas

A risk from hazardous gas sources, located both on and off site, associated with the underlying Lower Coal Measures strata, exists.

To confirm the situation regarding hazardous gases on site, from potential on and off-site sources, a hazardous gas investigation would be required to determine the need or otherwise for gas protection measures in future residential properties.

According to the BRE, radon protective measures are **not** required for the site.

6.7. Invasive Plants

No invasive plant species were identified on site. However, it is recommended that the presence / absence of invasive plant species is confirmed by a qualified consultant ecologist. The treatment of any invasive species encountered should take place in advance of the proposed construction works.

6.8. Offsite Disposal

Given site levels are to be reduced, it is recommended that chemical testing within the areas to be cut is undertaken to allow a classification of the material prior to it being removed from site. If it is anticipated that soils will be disposed of to landfill, it is recommended that discussion with landfill operators takes place at an early stage and the chemical test results are used to inform the discussion.

Any removal of materials from site should be undertaken in accordance with current Duty of Care requirements and the EA Technical Guidance Document WM3[1]. The waste may also be subject to Waste Acceptance Criteria (WAC) testing.

[1] Environment Agency. 2015. *Guidance on the Classification and Assessment of Waste (1st Edition 2015). Technical Guidance WM3.*

7. FURTHER INVESTIGATION

The following ground investigation works are recommended to allow determination of any potential contamination constraints, abnormal costs and establish the perceived risk to surface stability from shallow worked coal, in relation to the proposed development:

- Trial pitting and/or window sampling across the site to investigate near-surface soil and groundwater conditions, and to allow recovery of soil samples for chemical and geotechnical testing;
- Rotary open hole boreholes to confirm determine the presence/absence of workable coal at shallow depth;
- Installation of gas / groundwater monitoring boreholes within selected boreholes;
- A suitable period of ground gas monitoring should be undertaken, including groundwater level monitoring, to suitably characterise the ground gas regime at the site;
- Geotechnical and contamination testing at UKAS accredited testing laboratories to adequately characterise the made ground and shallow soils, and groundwater quality;
- Reporting.

Intrusive ground investigation works should be carried out by a suitably qualified geoenvironmental consultant.

Information on buried utilities should be obtained to identify any existing below ground services.

It is recommended that a structural engineer is instructed to assess the suitability of the existing buildings and their foundations, for a residential end-use.

As part of the development works it is recommended that inspection of the cesspit, located beyond the southern site boundary, be undertaken to confirm the status, size and lining condition of the structure.

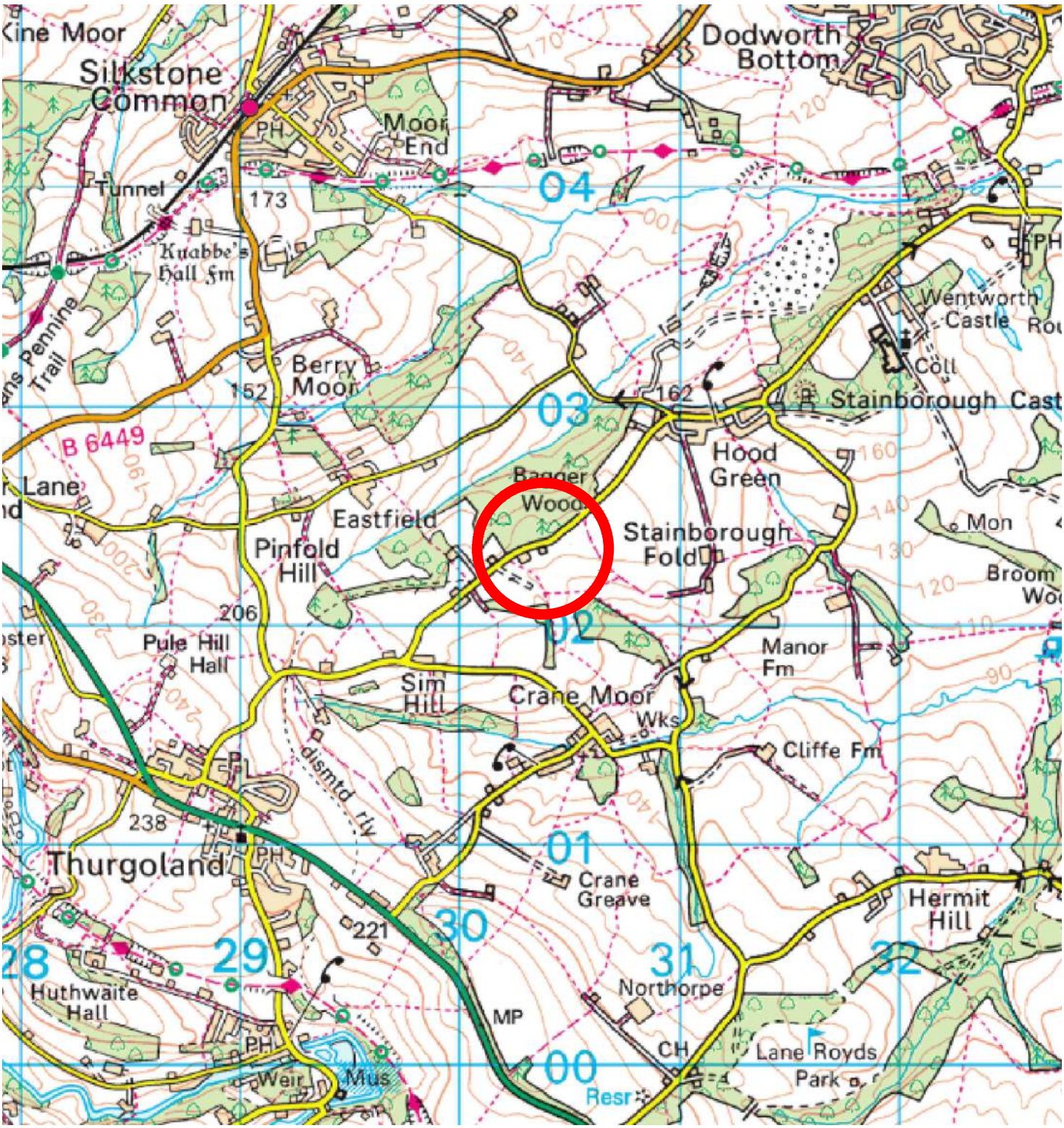
An invasive plant species survey should be undertaken to identify the presence of such species within and adjacent to the site, and their implication.

8. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of this desk study. However, these cannot be guaranteed to gain regulatory approval and therefore the report should be passed to the appropriate regulatory authorities, including the local authority, Environment Agency and / or other relevant organisations for their comment and approval prior to undertaking any works on site.

APPENDIX A

DRAWINGS



NOTES

Site Location

REVISION	
0	For Information
A	>>
B	>>
C	>>
D	>>

SIRIUS GEOTECHNICAL LTD
4245 Park Approach,
Thorpe Park,
Leeds,
LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

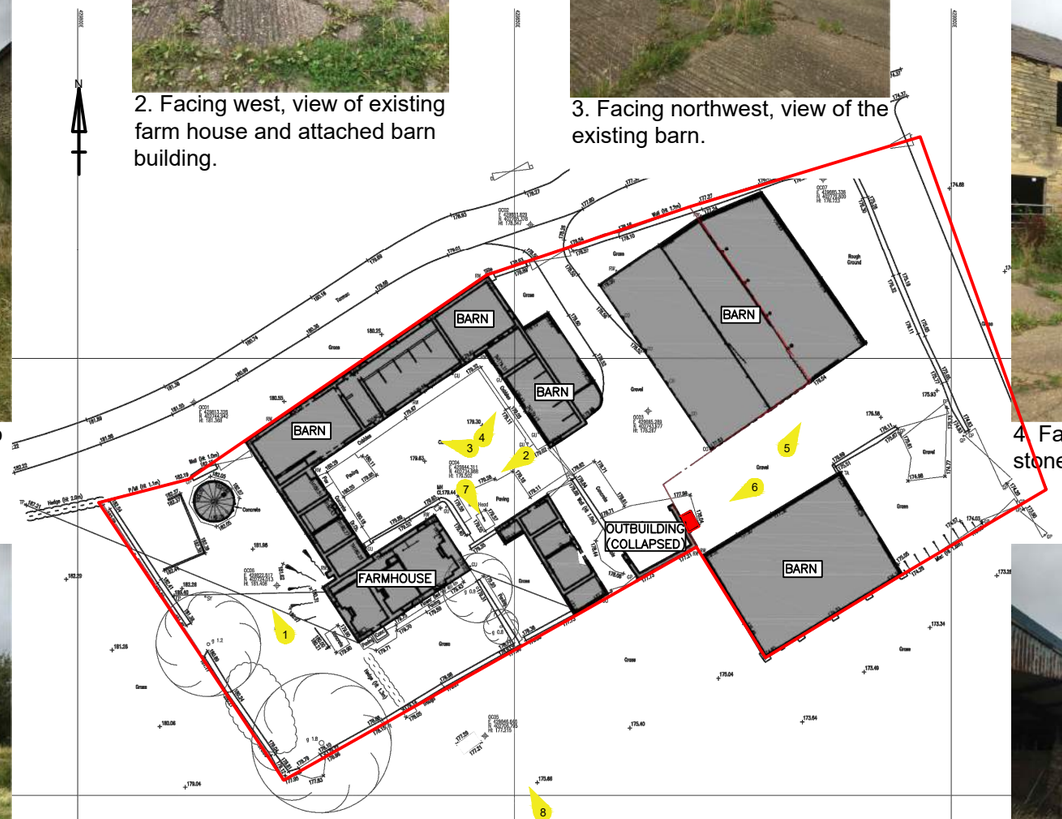
CLIENT: Mr and Mrs J Miller	DRAWING NO.: C8520/01	REVISION NO.: 0	
SITE: Easterfield Farm, Thurgoland	DRAWN BY: MF	APPROVED BY: RC	
DRAWING TITLE: Site Location Plan	DATE: Sept 2019	SCALE: 1:25,000	A4

1. Facing north, view of the silo on the site boundary.

2. Facing west, view of existing farm house and attached barn building.

3. Facing northwest, view of the existing barn.

4. Facing northeast, view of stone barn and brick extension.



8. Facing north, view of the original farm house and associated extension. Cesspit is in the foreground.

7. Facing south, showing position of existing well.

6. Facing west, above ground fuel tank on gable wall.

5. Facing northeast, view of asbestos cement sheet clad barn.

NOTES

Site boundary

Area of above ground fuel tank

Area of buried cesspit

REVISION		BY	DATE
0	For Information	RC	20/09/19
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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4245 Park Approach,
Thorpe Park,
Leeds
LS15 8GB
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FAX: 0113 264 9962

CLIENT

Mr and Mrs J Miller

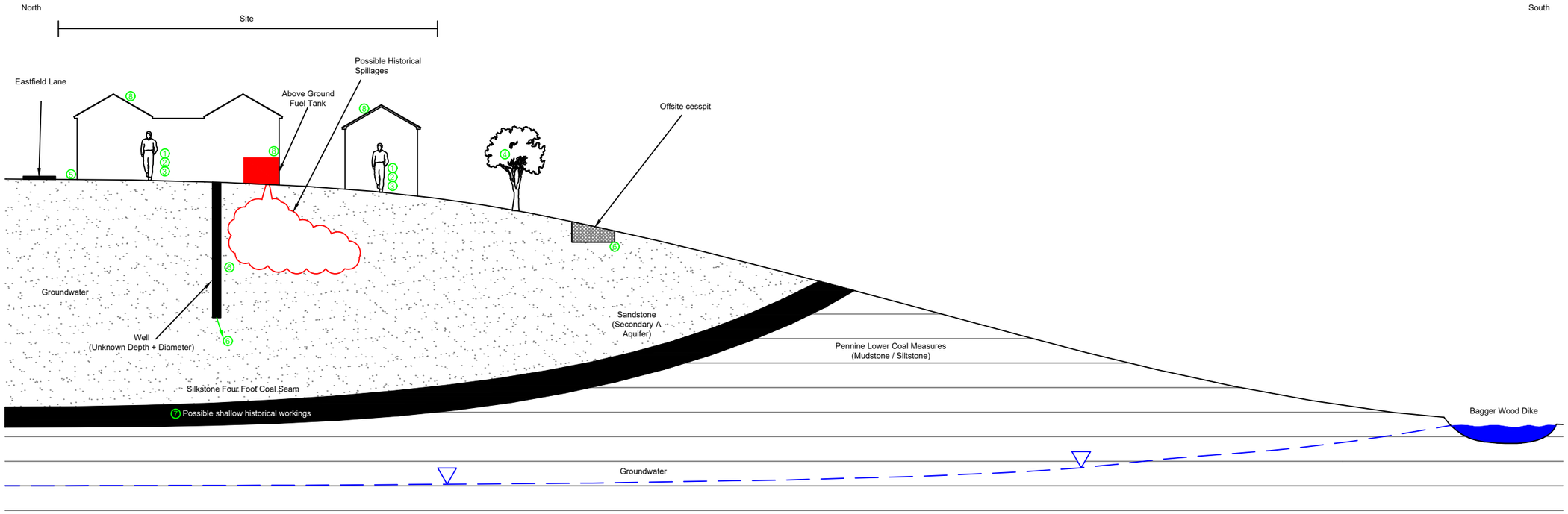
SITE

Eastfield Farm, Thurgoland

DRAWING TITLE

Site Features Plan

DRAWING NO.	REVISION NO.
C8520/02	0
DRAWN BY	APPROVED BY
RC	MB
DATE	SCALE	PAPER SIZE
September 2019	NTS	A3



Contamination Source	Contamination Pathway	Potential Receptors	Risk of Significant Contamination Linkage
Metals, metalloids, inorganic compounds (including sulphates), asbestos (inhalation only), hydrocarbons (including PAH's), pesticides and herbicides may be present within topsoil, localised made ground and / or shallow soils at the site.	1) Direct and Indirect ingestion 2) Inhalation of contaminated particles and dust 3) Dermal contact	Construction workers, adjacent site users and site end users	Low to Moderate
	4) Plant Uptake	Areas of private gardens and soft landscaping	Low to Moderate
	5) Sulphate Attack	Built environment	Low to Moderate
Possible leachable (and mobile) of metals, and metalloids, other inorganic and/or organic contaminates in perched/shallow groundwater.	6) Leaching via groundwater flow	Underlying Secondary A Aquifer and off-site surface watercourses	Low to Moderate
Ground gas associated with possible shallow historical coal workings.	7) Gas migration	Construction workers, adjacent site users and site end users	Low to Moderate
Asbestos present within historical buildings on-site	8) Inhalation	Construction workers	Low (assuming an appropriate method of removal)

NOTES

REVISION		BY	DATE
0	For Information	MF	20/09/19
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

Mr and Mrs J Miller

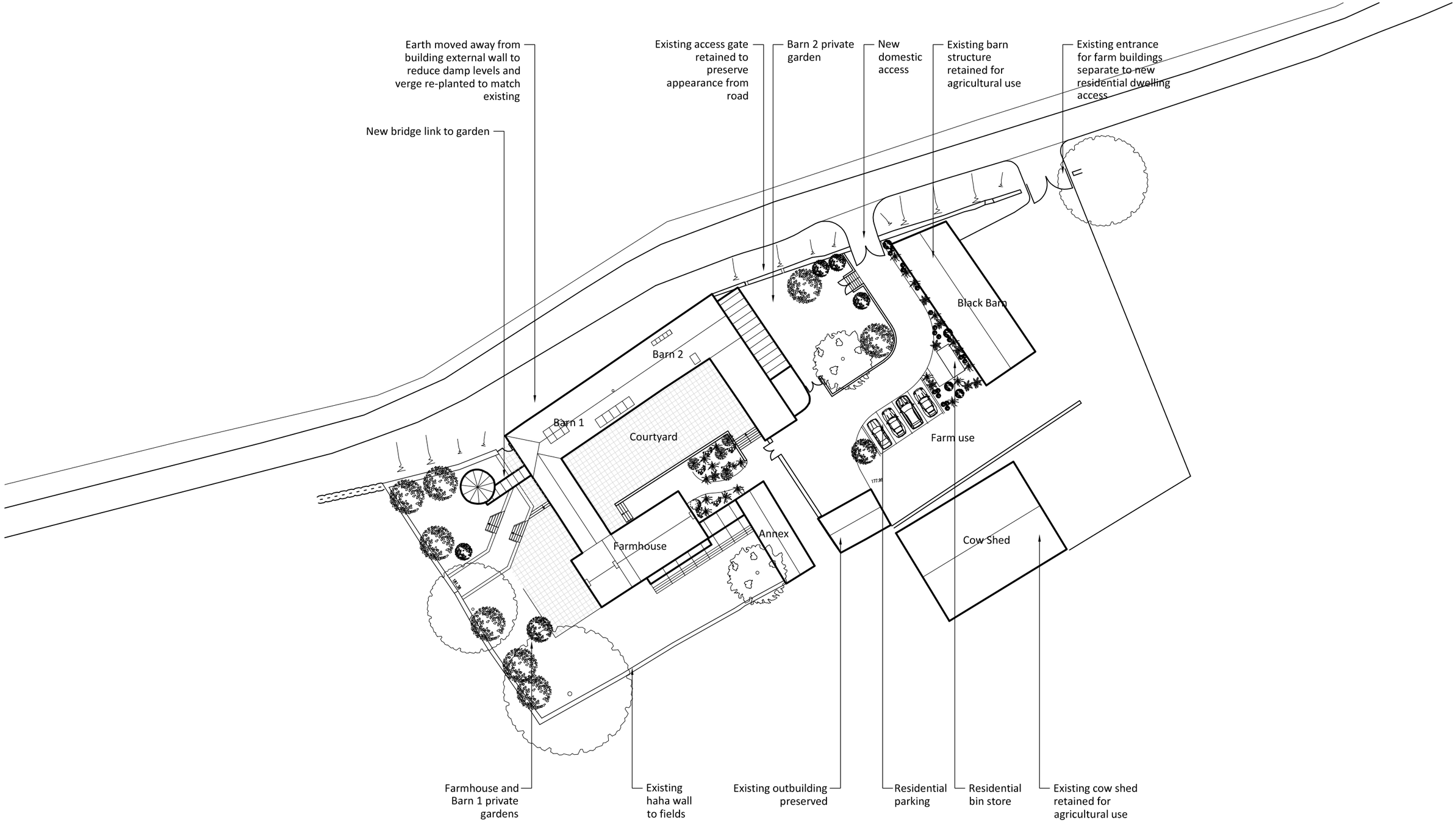
SITE

Eastfield Farm, Thurgoland

DRAWING TITLE

Preliminary Conceptual Site Model

DRAWING NO.	REVISION NO.
C8520/03	0
DRAWN BY: MF	APPROVED BY: RC
DATE: September 2019	SCALE: NTS
PAPER SIZE: A3	



DRAFT FOR COMMENT ONLY

Proposed Site Plan

1:500@A3 | Lower Eastfield Farm, Thurgoland | PL(01)102

Miller Family

group ginger

architecture, urban design and creative intelligence

XX xxxxxxxxxxxxxxxxxxxxxxxxxx XX.XX.XX XXX

Revisions

N

0 10m 25m

1:500

NOTES

KEY

Grid & Datum - Local Plane Grid related to OS National Grid & Datum
By GNSS RTK Observations

STANDARD ABBREVIATIONS

STREET FURNITURE

A/C - AIR CONDITIONING
AE - AERIAL
AL - ALARM
AV - AIR VALVE
BA - BUOYANCY AID
BB - BELISHA BEACON
BD - BUILDING DIVIDE
BH - BOREHOLE
BL - BASEMENT LIGHT
BO - BOLLARD
BP - BOUNDARY POST
BR - BOULDER
BS - BUS STOP
BU - BUSH
CA - CABLE
CB - CONTROL BOX
CC - CLOSE CIRCUIT TV
CIB - CIGARETTE BIN
CoV - COLUMN
CT - CLOSE CIRCUIT TV POLE
DP - DOWN PIPE
DR - DRAIN
Dr Ch - DRAINAGE CHANNEL
DU - DUCT
EL - ELECTRIC
EP - ELECTRICITY POLE
ER - EARTH ROD
FA - FENDOR ANCHOR
F/B - FLOWER BED
FH - FIRE HYDRANT
FL - FLOODLIGHT
FS - FLAG STAFF
GA - GAS
GM - GAS METER
G - GIRTH
GP - GATE POST
GU - GULLY
GV - GAS VALVE
Hyd - HYDRANT
IC - INSPECTION COVER
IT - TRAFFIC COVER
JB - JUNCTION BOX
KO - KERB OFFLET
LA - LADDER
LB - LITTER BIN
LC - LIGHTING COLUMN
LI - LIGHT
LP - LAMP POST
MBO - MOORING BOLLARD
MA - MAST
MH - MANHOLE
MO - MONUMENT
MP - MILE POST
MR - MOORING RING
MW - MONITORING WELL
NP - NAME PLATE
OH - OVERHEAD
OSBM - ORDNANCE SURVEY BENCH MARK
PA - PLAY APPARATUS
PB - PILLAR BOX
PH - PUBLIC HOUSE
PI - PIPE
PL - PLANT
PM - PARKING METER
PN - PLANTER
PO - POST
PP - PETROL PUMP
RH - RIDGE HEIGHT
RS - ROAD SIGN
RTW - RETAINING WALL
RWP - RAINWATER PIPE
SA - STANCHION
SC - SPEED CAMERA
SD - SATELITE DISH
S/F - SAFETY FENCE
SG - SIGNAL
SI - SIGN
SMP - SERVICE MARKER POST
SS - SECURITY SENSOR
ST - STOP TAP
SU - STUMP
SV - STOP VALVE
SW - SWITCHGEAR
SY - STAY
TA - TAP
TBM - TEMPORARY BENCH MARK
TCB - TELEPHONE CALL BOX
TE - TELEPHONE
TM - TICKET MACHINE
TS - TRAFFIC SIGNAL
TP - TELEGRAPH POLE
UTL - UNABLE TO LIFT
VDP - VEHICLE DETECTOR PAD
VP - VENT PIPE
WB - WHISTLE BLOW
WM - WATER METER
WO - WASH OUT
WP - WASTE PIPE

FENCE TYPES

B/W - BARBED WIRE
C/B - CLOSE BOARDED
C/I - CORRUGATED IRON
C/P - CONCRETE PANEL
H/R - HANDRAIL
I/R - IRON RAILING
P/AL - PALISADE
P/C - POST & CHAIN
P/P - POST & PANEL
P/R - POST & RAIL
P/SB - PEDESTRIAN SAFETY BARRIER
P/W - POST & WIRE
W/M - WIRE MESH

LEVELS

BL43.45 - BED LEVEL
EV43.45 - EAVE LEVEL
IL43.45 - INVERT LEVEL
43.45 - SPOT LEVEL
RF43.45 - ROOF LEVEL
RL43.45 - RIDGE LEVEL
SB43.45 - SOFT BED LEVEL
SL43.45 - SOFFIT LEVEL
TH43.45 - THRESHOLD LEVEL
WL43.45 - WATER LEVEL

SYMBOLS

HEDGE
GATE
BUILDING
TREE CANOPY
CONTROL STATION
TACTILE PAVING
TREE

Rev	Date	Drawn	Description	Ch'k'd	App'd

N D OLIVER & CO
CHARTERED GEOMATIC SURVEYORS
Jupiter House, 21 Roebuck Lane, Sale, Manchester, M33 7SY
T: 0161 973 3495 F: 0161 962 6819
E: mail@ndoliver.com www.ndoliver.com

Client
GROUP GINGER
THE TETLEY
HUNSLET ROAD
LEEDS
LS10 1JQ

Title
EASTFIELD LANE
THURGOLAND
SHEFFIELD S35 7AY

TOPOGRAPHICAL SURVEY

SHEET 1 OF 1

Surveyed	PG	Drawn	BW	Drawn Date: 11/03/2019
Checked	AM	Approved	NDO	
Scale 1:200 @ A1	Project 10126			Status ORIG
	CAD File N:\NDO-SBS\Projects\10126\DRAWINGS\10126_001.DWG			
Drawing No 10126 / 001				Rev 0

APPENDIX B

ENVIROCHECK REPORT

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
218262450_1_1

Customer Reference:
19209.1/C8520/MB

National Grid Reference:
429860, 402740

Slice:
A

Site Area (Ha):
0.39

Search Buffer (m):
1000

Site Details:

Lower Eastfield Farm, Eastfield Lane
Thurgoland
SHEFFIELD
S35 7AY

Client Details:

S Howson
Sirius Geotechnical Ltd
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Scottish Natural Heritage Copyright

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2		1		
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2		Yes		
Pollution Incidents to Controlled Waters	pg 2				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 2	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 2	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 3		1	6	33

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 8				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 8	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 8				1
Registered Landfill Sites	pg 8				1
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 9	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 9		4	3	31
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 15	Yes	n/a	n/a	n/a
Mining Instability	pg 15	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 15	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards				n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries					
Fuel Station Entries					
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland	pg 18		2	3	3
Areas of Adopted Green Belt	pg 18	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 18	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (NW)	0	1	429857 402736
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	92	1	430000 402736
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	93	1	429950 402650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	98	1	430000 402700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	118	1	429900 402600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	152	1	429857 402550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	203	1	429800 402500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	242	1	430150 402736
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	281	1	429700 402450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	312	1	429550 402550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	342	1	430250 402750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	349	1	429650 402400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	394	1	429650 403100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	405	1	429550 403050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	418	1	429600 402350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	428	1	429850 403200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (NW)	458	1	429400 402950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	476	1	429857 403250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	478	1	429850 403250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Mr David Warttig Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Hill Top Farm Eastfield Lane, Thurgoland, Sheffield, South Yorkshire, S35 7ay Authority: Environment Agency, North East Region Catchment Area: Not Supplied Reference: Eprvp3721gs Permit Version: 1 Effective Date: 14th August 2012 Issued Date: 14th August 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Land **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SW (W)	240	2	429563 402733
	Nearest Surface Water Feature	A13SE (SE)	148	-	429959 402592
2	**Pollution Incidents to Controlled Waters** Property Type: Farm Location: Mouth/Source Wiske Af Authority: Environment Agency, North East Region Pollutant: Animal Waste/Slurry Note: Not Supplied Incident Date: 7th May 1993 Incident Reference: 144852 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	807	2	430500 403300
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13SE (NW)	0	3	429857 402736
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NW)	0	3	429857 402736
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 710.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A13SE (SE)	149	4	429951 402585
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 534.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A13SW (S)	252	4	429782 402453
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 550.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A13NW (NW)	412	4	429557 403062
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 856.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A18SW (N)	414	4	429708 403149
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: Underground Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A18SW (NW)	434	4	429640 403140
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 399.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (E)	475	4	430378 402803
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 613.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A14NW (E)	475	4	430378 402803
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 388.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	648	4	429182 402915
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A12NE (W)	648	4	429182 402915

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: Underground Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A12NW (W)	679	4	429144 402895
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A12NW (W)	690	4	429132 402891
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A12NW (W)	713	4	429102 402861
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 313.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A12NW (W)	796	4	429011 402806
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 2	A12NW (W)	796	4	429011 402806
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NW (W)	809	4	428998 402817
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 148.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NW (W)	810	4	428997 402817
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NW (W)	810	4	428997 402817
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NW (NE)	831	4	430226 403533

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 86.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NW (NE)	847	4	430265 403532
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A19NW (N)	880	4	430205 403594
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 398.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A19NW (NE)	892	4	430218 403603
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 155.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A9NE (SE)	913	4	430571 402106
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	953	4	430731 403217
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 192.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NW (SW)	953	4	428930 402352
27	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 8.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NW (W)	955	4	428853 402818
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SW (W)	960	4	428891 402435
29	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 18.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NW (W)	962	4	428908 402382

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 280.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NW (W)	962	4	428845 402819
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	970	4	430729 403257
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	973	4	430733 403256
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NW (W)	973	4	428892 402392
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	980	4	430741 403256
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	980	4	430752 403237
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	986	4	430747 403258
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 204.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A11SE (W)	986	4	428829 402582
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.1 Watercourse Level: Underground Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	989	4	430757 403246

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	990	4	430750 403260
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bagger Wood Dike Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	991	4	430759 403247
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 262.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hollin Dike Catchment Name: Don and Rother Primacy: 1	A11SE (W)	998	4	428813 402608
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 259.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A15NW (E)	1000	4	430873 402996

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**Historical Landfill Sites** Licence Holder: South Yorkshire County Council Location: Hollin Moor Bridge, Hood Moor, Hood Green, Barnsley Name: County Engineers Site Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04873 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4400/0432 BGS Ref: Not Supplied Other Ref: 4400/B15, 2B15(29), WD20 Eng9, WD2 B15	A8NE (SE)	592	2	430128 402179
	Local Authority Landfill Coverage Name: Barnsley Metropolitan Borough Council - Has supplied landfill data		0	5	429857 402736
44	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 29 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status:** **Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A8NE (SE)	579	5	430111 402185
45	**Registered Landfill Sites** Licence Holder: Barnsley M.B.C. Licence Reference: WD 2 B15 Site Location: Hollin Moor Bridge, Hood Moor, Hood Green, Barnsley, South Yorkshire Licence Easting: 430160 Licence Northing: 402160 Operator Location: Eng.Dept, Barnsley, South Yorkshire Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st June 1985 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste Prohibited Waste: Non-Haz. Waste From Road Constn/Repair All Forms Of Asbestos Liq/Slurry In Drums/Cont'Rs > 4l Cap.	A8NE (SE)	623	2	430160 402160