HPK/2012/0537

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SEDDON HOMES LIMITED

Hawkshead Mill, Glossop

June 2012

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RW/C2058/3169

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PROJECT QUALITY CONTROL DATA SHEET

Site Name:	Hawkshead Mill, Glossop
Report Title:	Desk Study Assessment Report
Report Number:	RW/C2058/3169

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Revision	Date	Status
-	26 June 2012	Final

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DESK STUDY ASSESSMENT REPORT
at
HAWKSHEAD MILL, GLOSSOP

1.0 INTRODUCTION

1.1 This report describes a Desk Study Assessment carried out by Brownfield Solutions Limited (BSL) for Seddon Homes Ltd on a site at Hawkshead Mill, Glossop.

1.2 The objectives of the Desk Study Assessment were to determine the sites environmental setting and likely site conditions, highlighting potential areas of concern that may govern the sites redevelopment.

1.3 This Desk Study Assessment has been carried out based on information obtained from a number of areas, BSL have assumed that this information is correct.

2.0 THE SITE

2.1 Location & Access

2.1.1 The site is located to the north of Hawkshead Road, approximately 1.0km north of Glossop Town centre.

2.1.2 The site is centred on National Grid Reference 404402, 395162.

2.1.3 Access to the site is gained off Hawkshead Road, which borders the southeast corner of the site.

2.2 Surrounding Land Use

2.2.1 The site is bordered by a combination of agricultural, industrial and residential land uses.

2.2.2 A farm borders the site towards the northeast and a block of residential housing borders the site to the east.

2.2.3 A former mill building converted into a house, borders the site to the south. A concrete retaining wall, approximately 6m in height separates the mill buildings on site from the adjacent houses.

2.2.4 A small reservoir borders the site to the north whilst residential housing and undeveloped fields border the western part of the site.

2.3 Site Description

2.3.1 A walkover survey was carried out at the site on the 18th June 2012. The main site features and potential issues identified during this survey are detailed below.

2.3.2 The site is presently occupied by land associated with a disused mill. The site is an irregular shape, generally slopes down towards the south and has an approximate area of 2.18 hectares.

Southern & Central Area

2.3.3 The southern area of the site is predominantly occupied by the buildings associated with the former mill.

2.3.4 A block of two storey buildings can be found on south eastern part of the site. These buildings have been constructed from sandstone and appear to have been used as workshops and offices.

2.3.5 A pebble road sloping down towards the south bounds these buildings to the west. Further north, this road discontinues and becomes a gravel track.

2.3.6 To the west of this pebble road is a two storey building, presumably used as offices and workshops, which adjoins a larger single storey warehouse and

several associated workshop buildings. Immediately north of the two storey building is a 30m to 40m high brick chimney.

2.3.7 The larger warehouse building has been constructed at a lower level with its floor level approximately 6m lower than the rest of the site. Most of the roof of the warehouse is in a poor state of repair and fragile and it appears that most of the machinery within the main warehouse has been removed. The floor of the warehouse is of concrete construction. The warehouse predominantly occupies the central part of the site with smaller single storey buildings present to the northwest and south.

2.3.8 On the northern face of the main warehouse building is a loading bay, adjacent to which is a general skip.

2.3.9 A partially demolished building can be found in the southwest corner of the mill complex. A loading bay area is located approximately 10m northeast of the demolished building.

2.3.10 A 3m high brick retaining wall is present along the western face of the mill buildings.

Northern and Western Areas

2.3.11 Approximately 50m north of the loading bay, a fuel drum is present along a dirt path running through an area of woodland leading to the open fields.

2.3.12 West of the mill buildings, the land is undeveloped and occupied by undulating grassland with a drain running from north to south through the middle of this area. Trees and shrubs can be found between the mill buildings and the grassland.

2.3.13 A drain running from north to south appears to go under the northern face of the mill.

Above Ground Fuel Storage Tanks

2.3.14 Approximately 10m to the northwest of the brick chimney is an above ground oil tank. The tank is situated on a concrete slab and apart from a small amount of spillage via the valve it does not appear to have leaked significantly. A stockpile of brickwork is located approximately 10m to west of the tank.

2.3.15 Approximately 15m north of the fuel tank is a wooden shed with signs indicating a LPG tank was present.

2.3.16 Pertinent site features are shown on the Site Drawing C2058/02.

3.0 ENVIRONMENTAL SETTING

3.1 Published Geology

3.1.1 The following publications of the British Geological Survey (BGS) were examined in respect of the geology underlying the site:

- 1:50,000 Scale Geological Sheet 86 Glossop, Solid and Drift Edition.

3.1.2 The site is indicated to be underlain by Kinderscout Grit Deposits which form part of the Carboniferous Millstone Grit Series. These deposits are commonly made up of sandstones and shales.

3.1.3 No superficial deposits are shown directly beneath the site.

3.1.4 Faults are shown circa 100m to the north and west of the site. The fault to the north is shown trending in an approximate east to west direction with strata being downthrown to the north. The fault to west trends north to south with strata downthrown to the east.

3.1.5 An additional fault is present 300m to the east of the site trending north to south with strata downthrown to the west.

3.2 Hydrogeology

3.2.1 The Kinderscout Grit deposits are classified as a Secondary A Aquifer. These are 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.

3.2.2 There are no groundwater Source Protection Zones located within 500m.

3.2.3 There is no record of any groundwater abstractions within 500m of the site.

3.3 Hydrology

3.3.1 There are five watercourses listed on site and these include an extended culvert, a secondary river, two drains and a tertiary river.

3.3.2 In addition to the watercourses on site, numerous others are listed within 200m of the property.

3.3.3 The nearest named watercourse to the site is a primary river called the Blackshaw Clough which lies 205m to the south west.

3.3.4 Information obtained from the Environment Agency indicates the site is not located in Zone 2 or Zone 3 floodplain or a flood storage area.

3.3.5 There are four surface water abstraction licenses at the site for process water and general cooling processes.

3.4 Historical Setting

3.4.1 Information has been obtained from historical Ordnance Survey Maps with the pertinent issues that may have affected the site or its environs summarised below.

3.4.2 The following plans produced by the Ordnance Survey were examined.

Scale	Date
1:1250 / 1:2500	1880-81, 1898, 1921, 1967, 1975, 1978, 1992, 1994, 2012.
1:10,000 / 1:10,560	1879-80, 1896-97, 1919-23, 1923-24, 1938, 1948, 1951, 1978-80, 1990, 2002, 2012.

The Site

3.4.3 The earliest maps inspected dated between 1879 and 1881 indicate the site to form part of Hawkshead Mill (cotton). The main mill buildings were located in the south eastern area of the property and a watercourse meandered through the site flowing from the north to the south western boundary. A number of smaller buildings were located along the watercourse. Sluices and a weir were situated adjacent to the northern site boundary and a weir was present towards the south western boundary. A large elongate 'Mill Pond' was situated along much of the eastern boundary. The western parts of the site were largely undeveloped.

3.4.4 The mill is described as being disused on the 1896-97 map.

3.4.5 By 1921, Hawkshead Mill is depicted as manufacturing nuts and bolts. The main works buildings had increased in size and a chimney is shown on the eastern elevation. Part of the watercourse passing through the site is no longer shown in the southern area of the property, presumably being culverted beneath the site.

3.4.6 The site largely remained unchanged until some point between 1951 and 1978. By 1978, the site was occupied by Hawkshead Mill (factory) and the works buildings had further developed to the north. A number of tanks are shown adjacent to the works buildings. The surface water features on site had also altered with two drains (one an overflow drain) now present running from the northern boundary towards the south western boundary and to the north of the works buildings. The mill pond in the eastern part of the site is no longer shown.

3.4.7 No significant changes appear to have been made to the site between 1978 and 2012.

Surrounding Area

3.4.8 The earliest maps dated between 1879 and 1881 show the site to be surrounded by a mixture of agricultural land and industrial premises. A quarry and Glossop Union Workhouse were present to the immediate west of the site; a reservoir was to the immediate north; another quarry was

130m to the east; and several mills and mill ponds were 90m to 250m to the south and southeast. The watercourse passing through the site extended beyond the site boundary to the north and southwest. A tanyard is indicated approximately 400m to the southeast.

3.4.9 The map dated 1896-97 indicated the quarry to the east as being 'Old' and a pit feature is shown to the immediate southwest of the site through which the watercourse flows.

3.4.10 By 1938 Glossop Union Workhouse was now an infirmary and known as 'P.A. Institution' and the 1951 map shows it as Shire Hill Hospital.

3.4.11 The quarry to the immediate west of the site was disused by 1978 and a number of tanks are shown within the grounds of the hospital to the west.

3.4.12 No significant changes had occurred to the immediate surroundings of the site by 2012 with the exception of increased residential development to the west and south.

3.4.13 The Historical Maps are presented in the Groundsure Report in Appendix A.

3.5 Environmental Searches

3.5.1 An Environmental Search has been conducted through Groundsure, which utilises British Geological Survey and Environment Agency databases. The full report can be found in Appendix B, although a summary of the more relevant findings is presented below.

Landfill Searches

3.5.2 There are no operational or historic landfills within 500m of the site.

Registered Waste Treatment/Transfer Sites

3.5.3 There are no licensed waste treatment/transfer sites within 500m of the site.

Pollution Incidents

3.5.4 There has been no Environment Agency recorded pollution incidents affecting the site however there have been three located 51m to 250m away. The nearest was 121m to the west with the pollutant being inert materials and wastes causing a minor land impact in March 2001.

3.5.5 Crude sewage had a minor impact on the land and water 164m to the southwest in April 2002, and sewage materials (grey water) had a minor impact on water 213m to the southwest in June 2003.

Authorised Processes

3.5.6 There are five historic IPC authorisations within 250m of the site and are all 229m to the south associated with non-ferrous metal processes at Firth Rixson Superalloys Ltd.

3.5.7 There are two records of Part A(1) and IPPC Authorised Activities 229m to the south, again associated with non-ferrous metal processes at Firth Rixson Superalloys Ltd.

3.5.8 There are two records of List 2 Dangerous Substances Inventory sites within 250m. These are both 238m to the south of the site at Firth Rixson Superalloys Ltd where authorised substances included arsenic, chromium, copper, lead, nickel, silver, vanadium, zinc and total metals.

3.5.9 There are four records of Radioactive Substance Authorisations within 250m again associated with Firth Rixson Superalloys Ltd located 229m and 241m to the south and southwest of the site.

Current Industrial Data

3.5.10 There are five records of current industrial uses associated with the site and include two tanks, Howard Town Brewery, Brass Fittings and Suppliers Ltd and Hawkshead Mill.

3.5.11 There are a further 12 current industrial uses within 250m of the site and include several tanks (58m NW, 105m NW, 206m S and 222m S), a factory (245m SW), a chimney (62m NW), disused quarries (63m NW, 175m E) and electricity sub stations (179m SW and 247m SW).

3.5.12 There are no petrol or fuels sites located within 500m of the site.

Discharge Consents

3.5.13 There are no records of licensed discharge consents within 500m of the site.

Environmental Health

3.5.14 A formal request has been made to High Peak Borough Council (HPBC) Environmental Health Department for information pertaining to the site. This information is presented in Appendix C and a summary of the relevant findings is presented below.

3.5.15 HPBC are not aware of any environmental problems or land reclamation schemes that are likely to significantly affect this site.

3.5.16 The site has not been determined as contaminated land under Part IIA of the Environmental Act 1990. The site has been identified as potentially contaminated due to historic use and the Council have a rolling program to assess the status of potentially contaminated land within this area.

3.5.17 It is unlikely that the site will be the subject of a remediation notice, on the basis of information currently available to the Council.

3.5.18 The site is not considered a special site based on information currently available.

3.5.19 HPBC has no record of any landfill (current, historic or otherwise) within 250m of the target site.

3.5.20 The only pollution incident at the site of which we have details occurred in 1984. A spillage of diesel oil at the site was believed to have affected a nearby watercourse, via a culvert.

Radon

3.5.15 Glossop is not an area requiring Radon precautions in foundations in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2007 Edition.

3.6 Coal Authority Search

3.6.1 The site lies in an area where a Coal Authority mining search is not required.

4.0 ENVIRONMENTAL CONCLUSIONS

4.1 Contaminative Sources

4.1.1 From the information obtained during the desk study, the site has historically been a cotton mill and more recently a factory used for manufacturing nuts and bolts. Numerous processes are considered potential sources of contamination on the site.

4.1.2 Textile mills were used for spinning a wide range of natural/synthetic fibres and the production of fabric from yarn. On occasions these fabrics were dyed, however there is no indication at this stage that the mill was also a dye works.

4.1.3 Chemicals used at the mills ranged from soaps and detergents to sizing agents and chemicals used to impart different properties such as water repellency and fire retardancy. These chemicals were often stored on site in liquid, granular and powder form.

4.1.4 Ground contamination often occurred from spillages of chemicals in off-loading areas, around storage tanks and drum storage areas, and in the vicinity of pipework. Effluents from washing fibres, yarn and fabric are normally discharged to foul sewers but may be lost to the surrounding ground if the sewers leak.

4.1.5 A number of above ground fuel storage tanks have been present at the site and asbestos containing materials may have been used to construct the industrial buildings.

4.1.6 The site exists at different levels and made ground may be present on the site. Another potential source of contamination is from boiler ash which may have been spread across the ground at the property to form site levels.

4.1.7 Based on the DoE Industry Profile for Textile Works, the following potential contaminants may also exist at the site:

- Metals, metalloids and their compounds
- Inorganic compounds, such as cyanides, chlorides and sulphides
- Solvents
- Sizing agents
- Organic compounds including fuels
- Pesticides
- Asbestos
- PCBs

4.1.7 A mill pond was located on the eastern part of the site which is no longer present and has presumably been backfilled. There is the potential for the material used to have backfill the pond to have been contaminated and this area is also a potential source of ground gas production.

4.1.8 Off-site sources of contamination include nearby former quarries, tanks, electricity substations and other nearby former mills.

4.2 Site Conceptual Model

4.2.1 Potential sensitive targets that may be adversely affected by this contamination include, site end users, groundwater and surface waters.

4.2.2 The risk assessment methodology used in this instance is based on **Source – Pathway – Receptor** (SPR) philosophy. The **source** is the presence of contamination, or substance/event likely to cause harm. The **receptor** is the target that may be detrimentally affected by the source. The **pathway** is the means of the contamination to move from the source to the receptor. Where any of these three factors are removed there is deemed to be no risk.

4.2.3 The risk posed to receptors by potential on-site and off-site sources have been assessed in the table below:

Potential Contaminative Source / Location	Contaminant	Receptor	Likelihood	Justification
Made ground / on site.	Heavy Metals, PAHs,	Site end users.	Likely	There is the potential for made ground materials to be present beneath the site given the historical industrial use of the property as a mill and factory since at least the late 1800s. The site is also on different levels indicating filling may have occurred. In addition, the mill pond and possibly watercourses/weirs have also been backfilled. There is the potential for boiler ash from the chimney to have been spread across the site to form levels. The risk is considered **moderate to high**. An intrusive investigation is required to quantify and assess the potential risk to site end users.
Fuel storage / on and off site.	Hydrocarbons and oils	Site end users.	Likely	Above ground fuel storage tanks have been identified at the site together with a fuel drum. There is a possibility that spillages/leakages may have occurred around these tanks. Leakages from valves were noted and the risk to end users is considered **moderate**. An intrusive investigation is required to quantify and assess the potential risk to site end users.
Made ground / on site.	VOCs and SVOCs	Site end users.	Unlikely to low likelihood	Historical processes at the site associated with the cotton mill may have used VOCs and SVOCs depending on the processes used which may have contaminated the ground. Any contamination is likely to have been discharged downstream. The risk is considered **low to moderate**. An intrusive investigation is required to quantify and assess the potential risk to site end users.

Potential Contaminative Source / Location	Contaminant	Receptor	Likelihood	Justification
Made ground / on site.	Heavy Metals and PAHs	Nearby surface water and underlying aquifer.	Likely	Surface water features have been identified on site and include two drains and three watercourses crossing the property which could have historically been impacted by historical processes. The site is underlain by a Secondary A Aquifer which could have also been impacted. The risk is considered to be **moderate to high.** The intrusive investigation will first quantify any contaminants in the soils, then groundwater and possibly leachate testing should be carried out to assess the risk to controlled waters.
Fuel storage / on and off site.	Hydrocarbons	Nearby surface water and underlying aquifer.	Likely	Above ground fuel storage tanks have been identified at the site together with a fuel drum. There is a possibility that spillages/leakages may have occurred around these tanks which could potentially have migrated to the surface water features and watercourses at the site, and the underlying Secondary A Aquifer. Leakages from valves were noted and hydrocarbons are a mobile contaminant. A diesel oil spillage occurred in 1984 which is believed to have affected a nearby watercourse via a culvert. The risk to end users is considered **moderate to high.**
Made ground / on site.	VOCs and SVOCs	Nearby surface water and underlying aquifer.	Likely	Historical processes at the site associated with the mill would probably have used VOCs and SVOCs, if used the contaminant is likely to have been discharged down the watercourse. The intrusive investigation and watching brief will determine if such contaminants are present. If contaminants are present in the soils, they may have migrated and contaminated the surface water at the site and the underlying Secondary A Aquifer. However at this stage the risk is considered **low.**
Electricity Sub-station / on site.	PCB's	Site end users.	Unlikely	No electricity sub-stations have been identified on site however a number are located within 250m. Coolants from the sub-station could potentially contain PCBs which are generally present in small volumes and any leakages remain localised. Considered to be a **very low risk.**
Made ground and infilled mill pond on site / and former quarries off site.	Ground gases	Site end users.	Likely	It is anticipated that the site will be underlain by made ground materials associated with the former mill and a former mill pond was present on the eastern part of the site which has since been infilled. In addition, a number of nearby former quarries were present to the west and east. All of these features have the potential for producing ground gases. The risk is considered to be **moderate to high.** Gas monitoring should be carried out on the site to assess the risk to site end users.
Made ground and existing buildings / on site.	Asbestos	Site end users.	Low likelihood to likley	Made ground at the site may be associated with the former mill which may contain asbestos containing materials. In addition, buildings associated with the mill are potentially constructed with asbestos containing materials. A Type 3 asbestos survey will be required prior to the demolition of any

Potential Contaminative Source / Location	Contaminant	Receptor	Likelihood	Justification
				buildings at the site. Considered **moderate risk.** Asbestos screening of the made ground material should be carried out.

4.2.3 The site is currently occupied by a former mill and the risk of potential contaminants at the site to site end users is considered to be low to high.

4.2.4 The risk to controlled waters is considered to be low to moderate/high.

4.2.5 Potential sources of ground gas production have been identified on-site and off-site and the risk is considered to be moderate to high.

4.2.6 An intrusive investigation is required to quantify and assess the risk to both site end users and controlled waters.

4.3 Remedial Options

4.3.1 Due to the complex nature of the site, specific remedial measures cannot be recommended until the results of the intrusive investigation and assessment are available.

4.3.2 Any remedial designs should be confirmed with the High Peak Borough Council prior to any irrevocable actions being undertaken.

5.0 DEVELOPMENT CONSTRAINTS

5.1 Foundations

5.1.1 At this stage it is assumed that the site is to be redeveloped with standard two-storey residential properties.

5.1.2 No superficial deposits are shown on the geological records, however deep made ground may exist on the site. The foundation solution will be dependent on the depth of the made ground.

5.1.3 Watercourses and surface waters also historically existed on site, foundation solutions are also likely to be influenced by any associated deposits.

5.1.4 It should be noted that part of a culverted watercourse passes beneath the southern part of the site and that two drains currently cross the site. Liaison with the Environment Agency may be required with respect to the watercourses on site these will require an easement and will need to be taken into consideration in the design of the development layout.

5.1.5 The most suitable foundations can only be confirmed by on site intrusive investigations.

5.2 Other Constraints

5.2.1 Asbestos was not covered in this report. However, it should be noted that a Type 3 intrusive survey will be required prior to the demolition of any buildings.

5.2.2 Several retaining structures are present across the site. These features may be removed and levels regarded to allow the construction of the proposed dwellings. If the existing retaining walls are to remain on site, their competency/integrity may need to be assessed, alternatively new retaining structures may need to be constructed.

5.2.3 Several watercourses cross the site, some of these are fed from reservoirs upstream. The reservoirs and surface water system are likely to need further consideration in a flood risk assessment.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Based on the findings of this Desk Study Assessment it can be seen that the site has been developed as a mill since the late 1800s. Initially it was a cotton mill and more recently a nut and bolt factory. The buildings on site have developed in size over the years and a number of above ground tanks have also been present.

6.2 Numerous potential sources of contamination have been identified that may have resulted in soils and groundwater/surface water being contaminated, and some sources may also be sources of ground gas. The risk for on-site sources is considered to be low to high.

6.3 The potential off-site sources include quarries and electricity substations and are considered to be a very low to moderate/high risk to site end users.

6.4 Foundation recommendations can only be recommended based on an intrusive investigation.

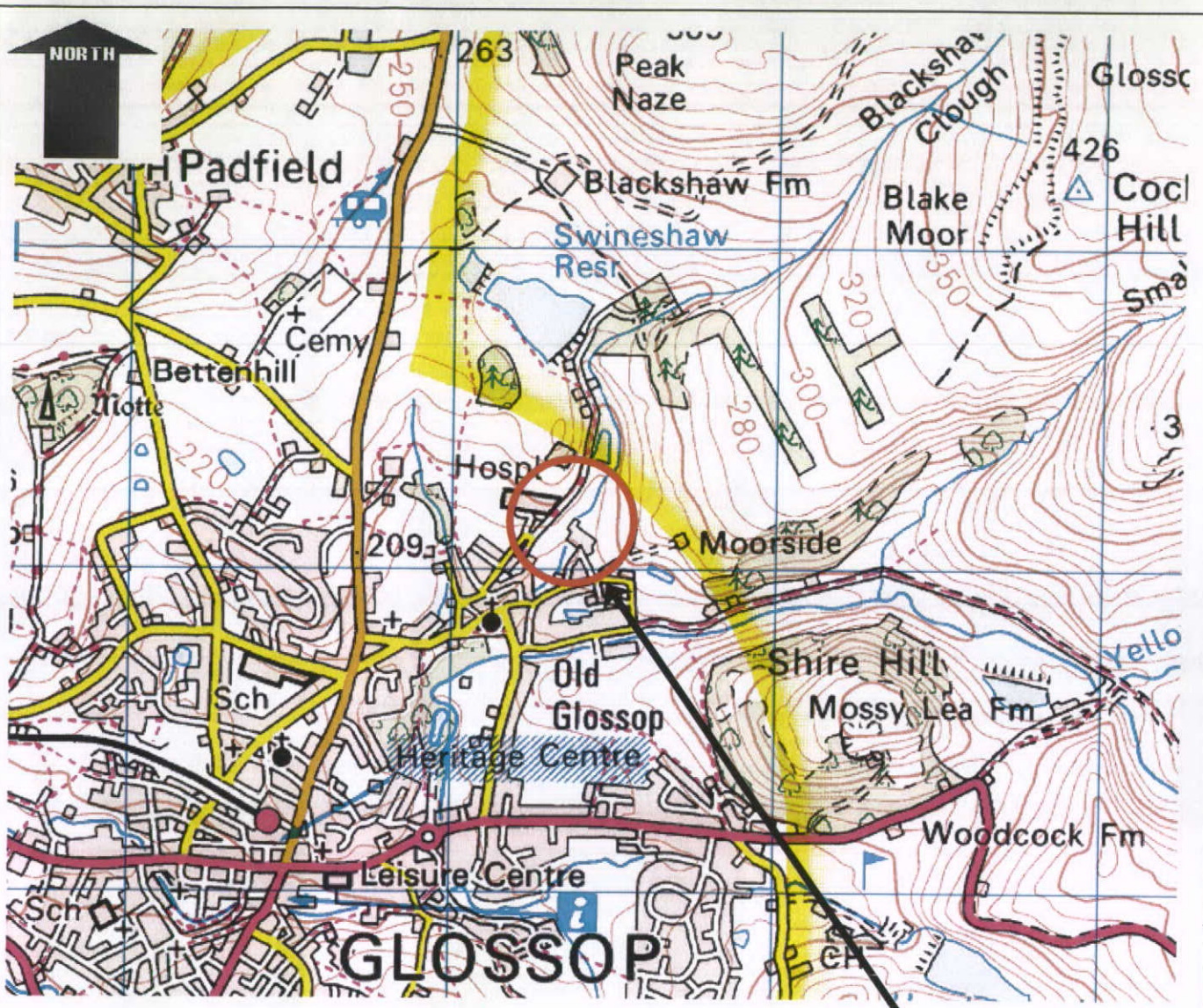
6.5 Retaining structures exist at the site which may require their competency assessing if they are to remain as part of the proposed development.

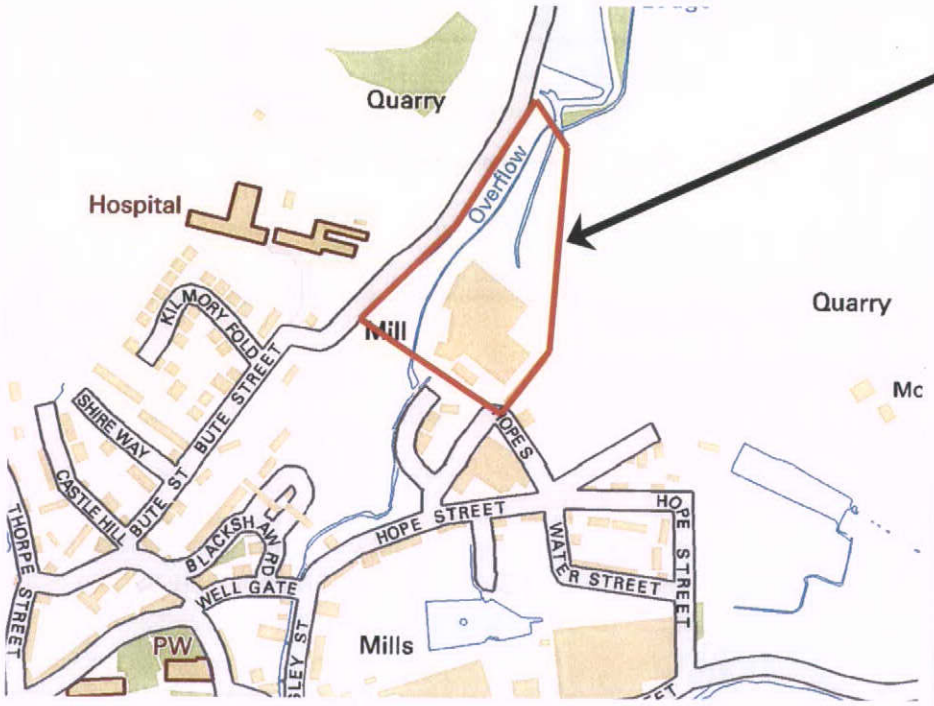
6.6 The reservoirs and surface water system are likely to need further consideration in a flood risk assessment.

6.7 Therefore to allow future residential development of the site the following further works are recommended, although this list is not exhaustive and should be read in conjunction with any planning conditions that are applicable to the site.

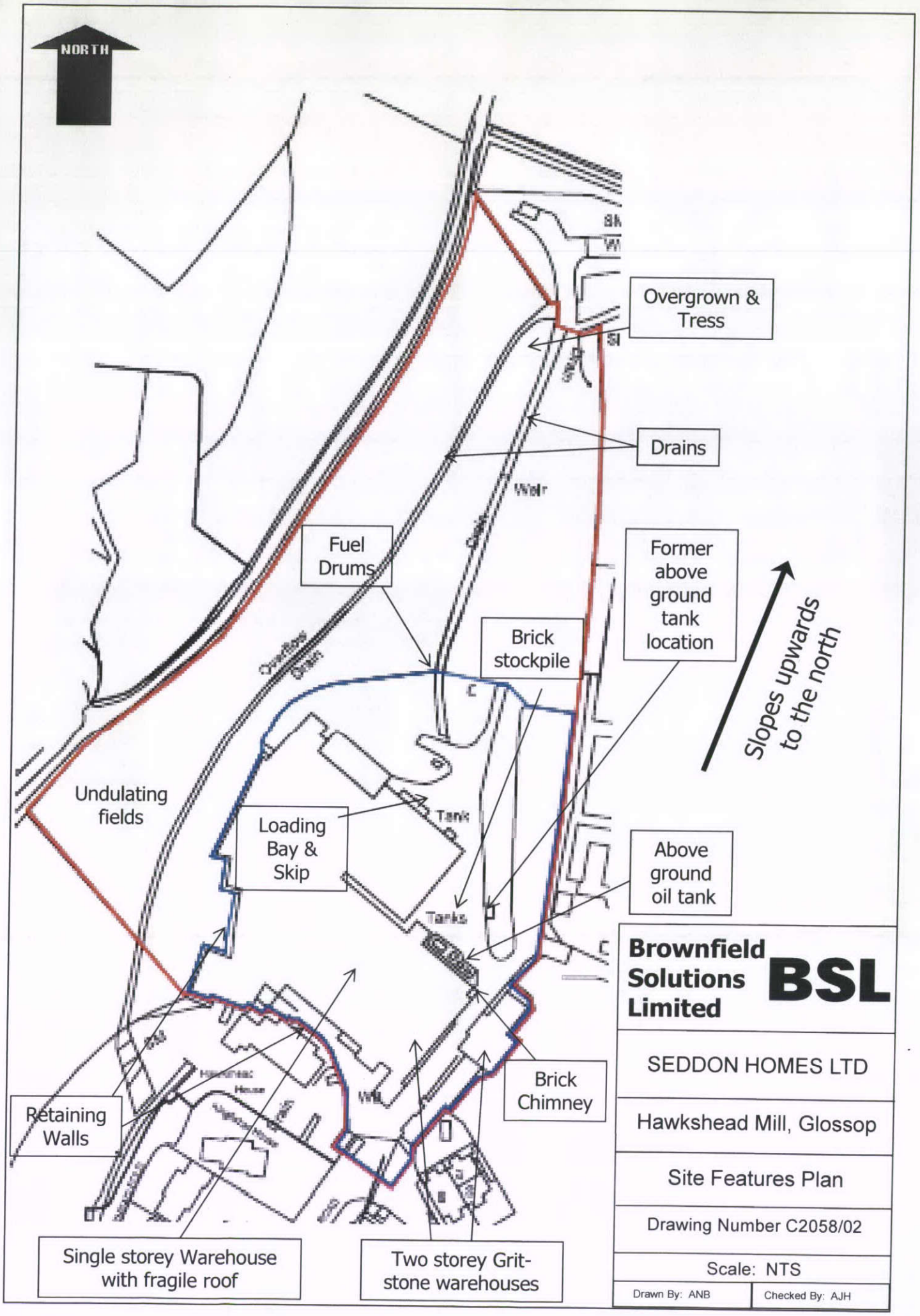
- Intrusive site investigations of the shallow soils. If mobile contamination is encountered deeper boreholes may be required to define the extent.
- Chemical testing of soil, groundwater and surface water samples for potential contamination.
- Obtain geotechnical information for preliminary foundation design.
- Programme of ground gas monitoring.
- Type 3 Asbestos survey.
- Design of remedial strategy if required.
- Confirmation of Remedial Strategy with the Local Authority.

DRAWINGS





Brownfield Solutions Limited	**BSL**
SEDDON HOMES LTD	
Hawkshead Mill, Glossop	
Site Location Plan	
Drawing Number C2058/01	
Scale: NTS	
Drawn By: AJH	Checked By: JMJ


NORTH
Overgrown & Tress
Drains
Fuel Drums
Former above ground tank location
Brick stockpile
Slopes upwards to the north
Undulating fields
Loading Bay & Skip
Above ground oil tank
Retaining Walls
Brick Chimney
Single storey Warehouse with fragile roof
Two storey Grit-stone warehouses
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Site Features Plan
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