Earth Environmental
& Geotechnical

Phase 1 GeoEnvironmental Desk Study

Busker Lane

Scissett

December 2016

On behalf of

Elements Construction Ltd

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business & Arts Centre
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BUSKER LANE

SCISSETT

PHASE I GEOENVIRONMENTAL DESK STUDY

FOR

ELEMENTS CONSTRUCTION LTD

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Report Title:	**Busker Lane, Scissett** **Phase I GeoEnvironmental Desk Study**
Report Reference:	**A1819/16**
Client:	**Elements Construction Ltd**
Issue Date:	**14th December 2016**
Drafted By:	**S Holden**
Reviewed By:	**A Czarnecki**
Authorised By:	**A Czarnecki**

Earth Environmental & Geotechnical

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1.0 INTRODUCTION

Appointment

1.1 Earth Environmental & Geotechnical was commissioned by Elements Construction Ltd (the client) to undertake a Phase I GeoEnvironmental Desk Study for land at Busker Lane, Scissett.

1.2 It is understood that the client is developing the land for a care home scheme.

Objective

1.3 The purpose of the Desk Study is to collate available geological and environmental data for the site (and its environment) in order to provide a preliminary geotechnical and geo-environmental appraisal, together with a site-specific conceptual model. This enables a preliminary assessment of geo-environmental risks to be undertaken and, if necessary, provides information for the design of a Phase 2 Ground Investigation.

Scope

1.4 The Phase I Environmental Desk Study comprises of a site reconnaissance visit and a review of the following information sources some of which was provided by the client.

- British Geological Survey online maps.
- Google Earth imagery.
- Environment Agency online mapping data.
- Historical Ordnance Survey maps.
- The site and surrounding areas environmental, geological and mining data presented in the site specific GroundSure Reports (Appendix 1).

2.0 SITE LOCATION AND DESCRIPTION

Site Location & Description

2.1 The site is located off Busker Lane, Scissett, approximately 0.25km west of Scissett and 1.3km south east of Skelmanthorpe. The site occupies approximately 0.59ha (GroundSure Report) of land and is within the district of Kirklees Council.

2.2 The approximate National Grid Reference for the centre of the site is SE 2465 1031 (Easting: 424655, Northing: 410314) and the entrance is off Busker Lane, the closest postcode being HD8 9JU.

2.3 The site is approximately square, with land gradient falling to the east and south, with average dimensions of 60m east to west and 85m north to south.

2.4 The site is vacant, and is colonised with scrub and grass. Heras fencing has been installed but the site is open to access.

2.5 A location plan is shown below as Figure 1.

Figure 1: Site Location Plan

2.6 Table 1 describes the boundaries around the site.

Table 1: Site Boundaries

Boundary	Security/ Barrier	Adjacent Landuse
North	Stone wall / fence	Busker Lane
East	Fence	Woodland
West	Fence	School, house and gardens
South	Fence	Scrub/woodland/tennis courts

Proposed Development

2.7 The proposed development consists of a care home scheme with private garden areas and parking.

Figure 2: Proposed Development Layout Plan

Site Utility Services

2.8 A site service plan has been not provided by the client.

2.9 The status of all services should be checked with the statutory providers prior to any development (including site investigation) commencing.

3.0 ENVIRONMENTAL SETTING

3.1 The geology of the site is covered by British Geological Survey (BGS) online data and the site specific GroundSure GeoInsight report (Appendix 1).

3.2 Environmental conditions are covered by Environment Agency (EA) and British Geological Survey (BGS) online data and the site specific GroundSure EnviroInsight report (Appendix 1).

Geology

3.3 The Groundsure Report and BGS do not identify any records that the site is underlain by artificial/made ground; however, the development history and the findings of the walkover indicate that made ground is present.

3.4 According to the GroundSure GeoInsight report and BGS the site is not underlain by superficial deposits. The closest record of superficial deposits are 127m east of the site comprising of alluvial deposits.

3.5 According to the GroundSure GeoInsight report and BGS the site is directly underlain by the Pennine Lower Coal Measures Formation and Penistone Flags sandstone.

3.6 There are no records of landslip within 500m of the site boundary.

3.7 There are 15 geological faults records within 500m of the site boundary. The closest is an inferred fault, displacement unknown, 9m southwest of the site.

3.8 The site is in an area where the hazard rating is negligible to very low to negligible with regard to shrink/swell clays, ground dissolution, landslides, compressible ground deposits, collapsible deposits, and running sands.

3.9 There are 12 British Geological survey borehole records within 250m of the site boundary. The closest is 15m southwest of the site. This showed clay to 5' (1.52m) below ground level and sandstone from 5' to 10' (3.04m) below ground level.

Ground Workings

3.10 There are 20 records of historical surface ground working features within 250m of the site. The closest is a pond 21m south of the site (1979 and 1967)). Other records include ponds, unspecified ground workings, colliery, cuttings, unspecified pits, refuse heaps and a reservoir.

3.11 There are 7 current ground workings recorded within 1km of the site. The closest is Scissett Colliery, 279m east of the site (ceased). Also recorded are surface mineral workings and deep coal mines.

3.12 There are no records of underground railway lines or tunnels within 250m of the site.

3.13 There are 2 records of historical railway or tunnel features within 250m of the site, both railway sidings, 197m southeast (1913), and 249m east (1904) respectively.

3.14 There are no active railway lines within 250m of the site.

3.15 There are 2 records of gasometers within 500m of the site. Both of these are from 142m south of the site, dated 1906 and 1893.

Mining and Other Underground Working

3.16 The site is located within the specified search distance of an identified mining area. The Coal Authority Interactive Map was checked; this showed that the site does not lie within a Development High Risk Area.

Radon Potential

3.17 The property is not in a Radon Affected Area as defined by the Health Protection Agency as less than 1% of properties are above the Action Level of exposure.

3.18 No radon protection measures are therefore necessary.

Hydrogeology and Hydrology

3.19 The bedrock sandstone beneath the site is classified by the Environment Agency 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*'

3.20 There are 17 groundwater abstraction licences within 1km of the site. The closest record is for a historical licence located at Phoenix Textiles, 133m southeast of the site.

3.21 There are no surface water abstraction licences within 2km of the site.

3.22 There is 1 potable water abstraction licence within 2km of the site. This is a domestic borehole located 1019m northwest of the site, for the use of cooking, drinking, sanitary, washing, and (small garden) - household.

3.23 There are no groundwater Source Protection Zones within 500m of the site.

3.24 There are 15 detailed river networks within 500m of the site boundary, the closest is the River Dearne located 182m southeast of the site.

3.25 There are 2 surface water features within 250m of the site; 191m southeast, and 243m south of the site.

Landfill and Waste Management Activity

3.26 There are no records of any Environmental Agency (EA) landfill sites within 1.5km of the site.

3.27 There are 5 records of Environment Agency Historic Landfill sites within 1km of the site. The closest is located 288m south of the site at Wakefield Road, Bagden (licence surrendered).

3.28 There are no records of non-operational landfill sites within 1.5km of the site.

3.29 There is one record of a waste treatment, transfer or disposal site within 500m of the site; a ground workings and refuse heap located 228m southeast of the site, dated 1913.

Industrial Land Use Information

3.30 Current industrial data for potentially contaminative uses within 250m shows 23 records, with the nearest being an electrical production and manipulation site 157m southeast of the site.

3.31 There are no records of petrol or fuel retailing sites within 500m of the site boundary.

3.32 There are no records of National Grid high voltage underground electricity transmission cables or high pressure gas transmission pipelines within 500m of the site.

Environmental Permits, Incidents and Registers

3.33 Searches of information provided by the Environment Agency and Local Authorities reveals the following within 500m of the property:

Table 2: Environmental Permits, Incidents and Registers

Historic IPC Authorisations	None
Part A (1) and IPPC Authorised Activities	None
Red List Discharge Consents	None
List 1 Dangerous Substances Inventory Sites	None
List 2 Dangerous Substances Inventory Sites	None
Part A (2) and Part B Activities and Enforcements	1
Category 3 or 4 Radioactive Substance Authorisations	None
Licensed Discharge Consents	None
Water Industry Referrals	None
Planning Hazardous Substance Consents and Enforcements	None
Dangerous or Hazardous (COMAH and NIHHS) Sites	None
National Incidents Recording System (Pollution Incidents), List 2	3
National Incidents Recording System (Pollution Incidents), List 1	None
Sites Determined as Contaminated Land under Part 2A EPA1990	None

3.34 The Part A(2) and Part B Activity relates to a Part B type permit issued for a waste oil burner 342m northeast of the site (no enforcements notified).

3.35 The National Incidents Recording System (Pollution Incidents), List 2 records are all dated 2003. The closest is 212m east of the site.

Environmentally Sensitive Sites

3.36 There are 2 records of DEFRA Nitrate Vulnerable Zones within 2km of the site, however, this is of no consequence for the proposed development.

3.37 There are 10 records of ancient woodland within 2km of the site. The closest is located 618m south of the site.

3.38 The site lies within the Liverpool, Manchester and West Yorks Greenbelt.

3.39 There are no other designated environmentally sensitive sites within 1km of the site.

Ecology

3.40 This report does not constitute an ecological appraisal. However, the walkover survey allowed a rapid assessment of potential ecological constraints. Habitats within the site are of low ecological importance; mature trees on and adjacent to the site are the most important features. Birds are likely to nest within trees and shrubs on site and therefore site clearance should avoid the nesting season (March to August inclusive). If this is not possible a thorough check for nests should be made by a suitably experienced ecologist. If any active nests are found an appropriate buffer would need to be maintained until the chicks have fledged (as advised by the ecologist). There is a low likelihood of other protected species using the site.

Archaeology

3.41 An archaeological assessment falls outside the brief of this report. Where considered necessary, advice should be sought from an archaeological specialist in this respect.

Potential Flood Risks

3.42 Detailed assessment of flood risk is outside the scope of this report. However, there is an Environment Agency Zone 3 floodplain located 177m southeast of the site.

3.43 There are no flood defences, areas benefitting from flood defences or areas used for flood storage within 250m of the site.

3.44 According to the BGS there are areas within 50m of the site boundary that has limited potential to clear water flooding from superficial deposits. The BGS rate this result with a low confidence rating.

Previous Site Investigations

3.45 We are not aware of any records of previous site investigations.

4.0 SITE HISTORY

4.1 The historical development of the site has been determined by reference to historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site dates back to 1851.

4.2 The site history is summarised in the table below, with selected extracts from maps presented on the following pages.

Table 3: Summary of Site History

Date	Site	Surrounding Land Use
1851 - 1854	The site is occupied by a field.	The surrounding area is dominated by fields. Several wooded areas are illustrated. A sandstone quarry is illustrated approximately 450m north east of the site. A railway line is illustrated 750m north of the site.
1893	The site is now shown as parkland.	Woodland cover has decreased to the north. There is a pond to the south of the site. The Clayton West Branch railway is shown approximately 1km to the north.
1894	The site remains the same as the previous historical map.	Scissett village becoming more urbanised.
1906	No changes on site.	No significant changes within the area.
1907-1908	No changes on site.	No significant changes within the area.
1916	No changes on site.	No significant changes within the area.
1938-1948	No changes on site.	A school is shown to the north of the site.
1955	No changes on site.	No significant changes within the area.
1960	No changes on site.	No significant changes within the area.
1965	No changes on site.	No significant changes within the area.
1971	Scissett Mount (Home for the Aged) shown on site.	No significant changes within the area.
1980-1983	No changes on site.	No significant changes within the area.
1984-1993	House adjacent to the northwest of the site is shown.	No significant changes within the area.
Google Earth Imagery, 2002	No changes on site.	No significant changes within the area.
Google Earth Imagery, 2003	No changes on site.	No significant changes within the area.
Google Earth	No changes on site.	No significant changes within the area.

Imagery, 2009		
Google Earth Imagery, 2015	The buildings on site have been demolished.	No significant changes within the area.

Figure 3: OS Map Extract 1854

Figure 4: OS Map Extract 1894

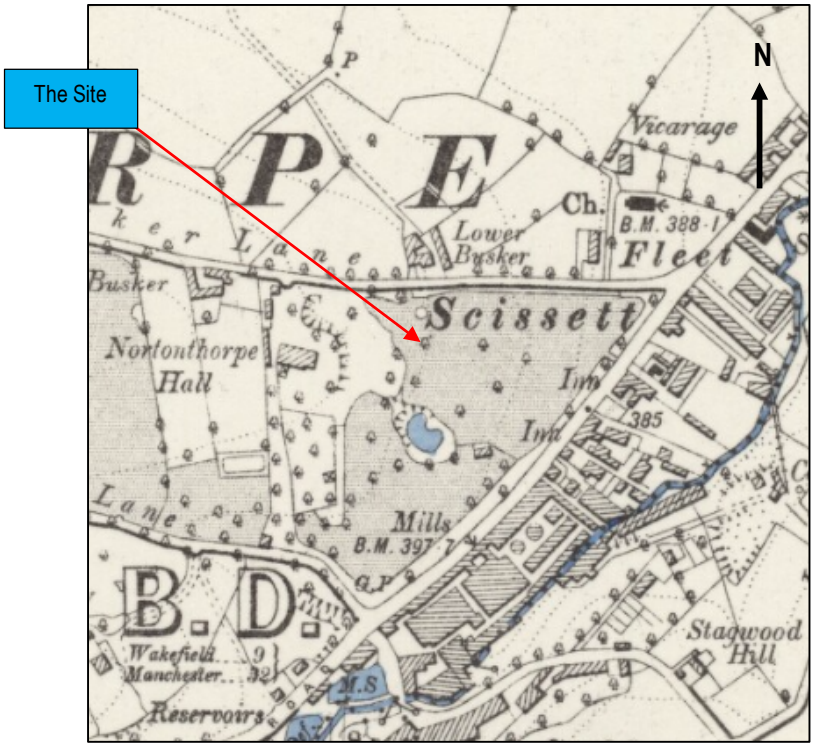


Figure 5: OS Map Extract 1907

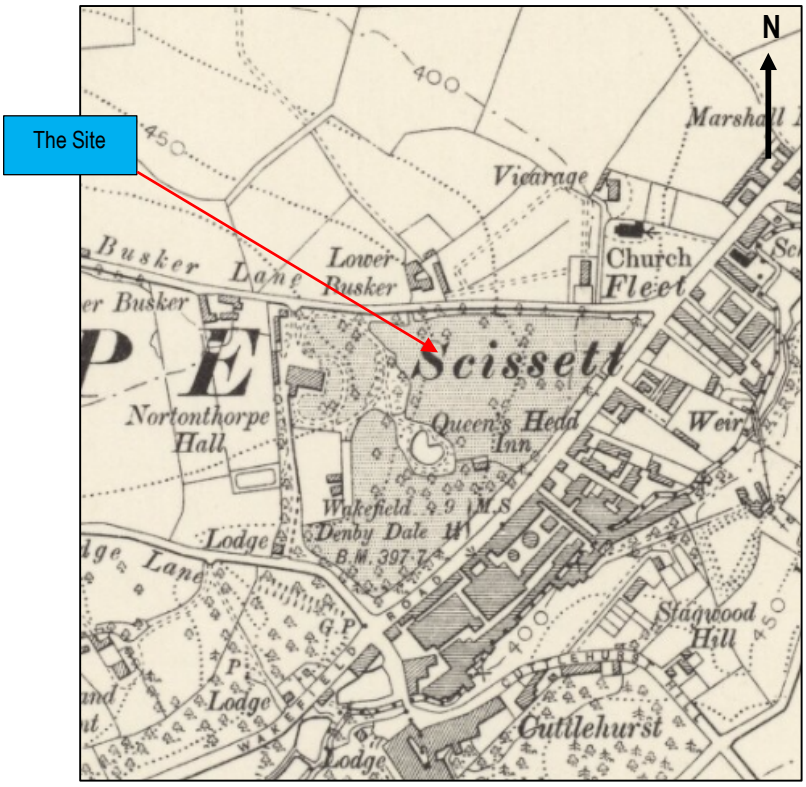
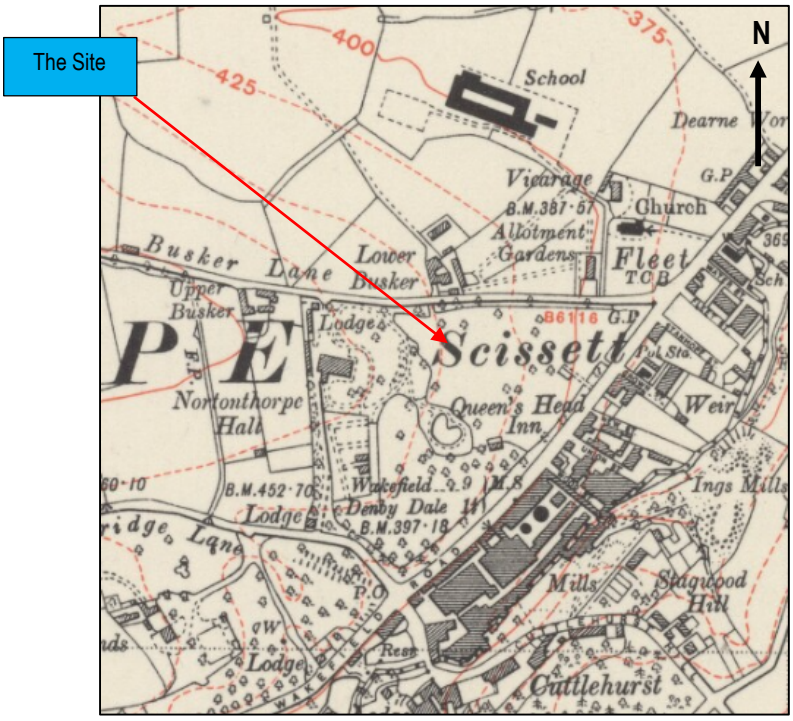


Figure 6: OS Map Extract 1948

Figure 7: OS Map Extract 1949



5.0 SITE WALKOVER

5.1 A Senior Environmental Consultant from Earth Environmental & Geotechnical completed a walkover survey at the site on 13th December 2016.

5.2 The survey notes are included in this report at Appendix 3 and photographs at Appendix 2. A summary is included below.

5.3 The site was entered off Busker Lane. Heras fencing is installed but the gate is open.

5.4 The site is currently vacant, with some residual evidence of the former buildings which occupied the site, in the form of building rubble, building remains and railings.

5.5 The site is covered by grass and scrub. There is a mature oak in the southeast corner.

5.6 The boundaries are formed by fences. There are mature trees along the northern and western boundaries.

5.7 There was evidence of some fly-tipping.

5.8 The site slopes downhill toward the east, at an approximate gradient of 15%.

6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

6.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11 (2004).

6.2 The table in Paragraph 6.4 provides a Preliminary Conceptual Model (PCM) which defines the site in terms of a potential pollution linkage, that is, whether a pathway exists between a contamination source and a sensitive environmental receptor (Source-Pathway-Receptor relationship).

6.3 The table considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists, but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

Table 4: Preliminary Conceptual Model

6.4 The PCM/PRA is based on a proposed residential end use.

Source	Pathway	Receptor	Linkage	Comment
The site was historically agricultural, before a care home was built circa 1970. The site was cleared circa 2012. The risk associated with this land use is considered **LOW.**	Direct contact, ingestion of soil, dermal contact, dust exposure pathways.	Current Site Users	Unlikely	The site is currently vacant and the risk associated with current site users via direct exposure is considered to be **LOW.**
		Adjacent land users	Possible	Contact via wind-blown dust/ debris, particularly during the development phase is possible. The current risk is considered **LOW** although this would increase during construction works. Appropriate dust control measures will therefore be required as part of good site working practices during construction.
		Future land users	Possible	The risk associated with future site users via direct exposure is considered to be **LOW**.
		Construction Workers	Possible	Any below ground contamination will be encountered during construction. Standard industry working practises for working on brownfield sites will be sufficient to manage any potential risks. The risk associated with construction workers via direct exposure is considered to be **NEGLIGIBLE.**

Source	Pathway	Receptor	Linkage	Comment
Made ground is anticipated on the site and in the vicinity, associated with historical demolition. The likelihood of soluble and/or liquid and therefore mobile contaminants occurring at the site is considered **LOW.**	Direct downward migration through leaching and/or mobile liquids.	Groundwater	Possible	The site is over a Secondary aquifer and there are 17 groundwater abstraction points within 1km. Potential sources of mobile contamination are identified and underlying permeable strata may facilitate localised migration. However, the site is not within a groundwater protection zone 3, the future land use is low risk and the perceived risk to groundwater is considered **LOW.**
	Off-site migration in groundwater or surface water flow.	Surface water	Unlikely	No surface water features are identified in the vicinity. Considering the environmental setting, the perceived risk to surface water is considered **VERY LOW**.
		Groundwater / surface water abstractions	Unlikely	The site is over a Secondary aquifer and outside of any surface and groundwater abstraction zone. The risk to water abstractions is considered **VERY LOW**.
		Adjacent Properties	Unlikely	Potential sources of mobile contamination may be present and the potential underlying made ground and geological strata have mixed permeability. The majority of residential properties in the vicinity do include garden areas and the north is dominated by fields. Therefore, the preliminary risk to adjacent properties is considered **VERY LOW**.
		Ecology	Unlikely	There are no ecologically sensitive sites within influencing distance of the subject site. The risk to ecology is therefore considered **VERY LOW.**
Made ground is anticipated on the site and in the vicinity, the likelihood of volatile contaminants occurring at the site is considered **LOW**.	Inhalation of harmful vapours (indoor and outdoor airspaces)	Site Users	Unlikely	The risk associated with current site users is considered to be **LOW**, if standard industry working practises are adopted**.**
		Adjacent Properties	Possible	Volatile contamination is unlikely to be present, and the underlying strata is expected to be permeable. Therefore, the potential risk to adjoining site users is considered **LOW.**
		Construction Workers	Unlikely	In the unlikely event of construction workers coming into contact with possible volatile compounds, the exposure time will be relatively short. The risk to construction workers, assuming that appropriate health and safety measures will be adopted, is therefore considered **NEGLIGIBLE**.
The closest historical landfill is 288m from site. The likelihood of degradable materials with the potential to generate hazardous ground gas is therefore **LOW.**	Emissions from the ground collecting in confined spaces and excavations	Construction/ services maintenance workers	Possible	Potential sources of degradable materials associated with the site and a nearby landfill. The preliminary risk is therefore considered **LOW.**

Source	Pathway	Receptor	Linkage	Comment
	Migration of gases on/off site and collecting in confined spaces on/off site.	Adjoining site users	Possible	Made ground may be present. Neighbouring dwellings increase the potential for exposure. Therefore, the potential risk to adjoining site users is considered **LOW-MEDIUM.**
		Current/future site users	Possible	Potentially degradable material may be present. The end use for the site is residential. The perceived risk to site end users is therefore considered **MEDIUM**.
Chemicals, which could prove aggressive to construction materials, may be present on site and is considered to be **LOW** risk.	Direct contact	Construction concrete, plastic water pipes.	Unlikely	Any risks to construction materials identified after site investigation and assessment will be mitigated as part of the structural design. The perceived risk is therefore considered **LOW**.

Preliminary Risk Assessment

6.5 Whilst contaminative materials are possible, these are unlikely to be significant. There are potential significant pollution linkages and associated preliminary risks are generally assessed as negligible to low.

6.6 Made ground is present on site associated with historical construction and demolition activities, which represents a potential source of contamination.

6.7 The site does not lie within a groundwater Source Protection Zone.

6.8 The site is a former care home (now demolished), it is unknown if the land has been filled and the nature of the fill unidentified. Allow risk has been identified with respect to the potential for the generation of hazardous ground gases.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 The site has a limited development history, and is currently vacant.

7.2 The nature and extent of made ground beneath the site is unknown.

7.3 No significant pollutant linkages have been identified on the site and risks are generally assessed as negligible to low.

7.4 A low risk has been assigned to the site for the potential for hazardous ground gas.

Recommendations

7.5 Ground conditions will need to be investigated as part of a geotechnical appraisal for foundation design purposes. As part of this investigation soil samples and groundwater samples should be recovered, in order to assess potential shallow contamination.

7.6 As a precautionary measure it is recommended that ground gas monitoring is incorporated in the ground investigation works.

7.7 An ecological survey is required as part of the planning process.

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APPENDIX 1

GROUNDSURE REPORTS

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APPENDIX 2

SITE PHOTOGRAPHS

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Earth Environmental & Geotechnical Ltd **Tel:** 0161 9756088 **Email**: info@earthenvironmental.co.uk **Web**: www.earthenvironmental.co.uk	**SITE PHOTOGRAPHS** Earth Environmental & Geotechnical
Job No.: A1819/16	**Site:** Busker Lane, Scissett
Plate 1 Looking West from Site Entrance	**Plate 2 Looking east from site entrance**
	
Date: 13th December 2016	**Date:** 13th December 2016
Plate 3 Site entrance	**Plate 4 Old hard standing**
	
Date: 13th December 2016	**Date:** 13th December 2016

Earth Environmental & Geotechnical Ltd **Tel:** 0161 9756088 **Email**: info@earthenvironmental.co.uk **Web**: www.earthenvironmental.co.uk	**SITE PHOTOGRAPHS**
Job No.: A1819/16	**Site:** Busker Lane, Scissett
Plate 5 Building remains – central area	**Plate 6 Path and railings – eastern area**
	
Date: 13th December 2016	**Date:** 13th December 2016
Plate 7 Eastern boundary	**Plate 8 Western boundary**
	
Date: 13th December 2016	**Date: 13th December 2016**

Earth Environmental & Geotechnical Ltd **Tel:** 0161 9756088 **Email**: info@earthenvironmental.co.uk **Web**: www.earthenvironmental.co.uk	**SITE PHOTOGRAPHS**
Job No.: A1819/16	**Site:** Busker Lane, Scissett
Plate 9 Small retaining wall at west	**Plate 10 Level area at southwest**
	
Date: 13th December 2016	**Date: 13th December 2016**

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APPENDIX 3

SITE WALKOVER NOTES

Earth Environmental & Geotechnical

WALK OVER SURVEY REPORT

Site: Busker Lane, Scissett **Date:** 13th December 2016

Job No: A1819/16 **Undertaken By:** Simon Holden

Purpose of Site Walkover:
1) Provide further information for the Desk Study Report;
2) Identify potential contamination sources, pathways and receptors;
3) Identify geotechnical features and potential geohazards;
4) Determine locations for potential exploratory boreholes.

Desk Study features checked during site visit	**Feature and Information required**	**Present**	**Description / Comments**
Site Setting	Description required for: Town/Country/Suburb Setting Industrial/Residential/Retail Usage Current Site use (if undertaking security and access to the site)		Fringes of a rural / residential area. Vacant
Evidence of Past Activities	Are there: Any relevant street names in area? Features or relics, which indicate past history?	~~Yes~~/No Yes/~~No~~	Building rubble, residual building remains.
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		The topography in the vicinity of the site falls towards the east.
Ground Conditions	Is there any evidence of: Mining, Mine entries Subsidence Landslip/slope erosion Former investigation works	 ~~Yes~~/No ~~Yes~~/No ~~Yes~~/No	
Topography	Description required for: Are there apparent differences between site and surrounding area? (If yes describe the presence of retaining walls, and slopes). Is there evidence of Made Ground / Fill on site?	 Yes/~~No~~ Yes/~~No~~	 The majority of the site is level. The eastern portion site follows the topography of the surrounding area (slopes eastwards). There is a small retaining wall at the west. Large quantities of compacted rubble present.

Desk Study features checked during site visit	**Feature and Information required**	**Present**	**Description / Comments**
Site Boundaries and Neighbours	Description required for: Type of boundary demarcation (if any) on each side of site, usage of adjacent land and name of industrial/commercial occupiers. Note any adjacent features such as water course and other potentially environmentally sensitive uses (residential, school, infirmary, SSSI etc)		N – Fence / stone wall / Busker Lane E– Fence / woodland S – Fence / hedgerow / scrub / tennis court W – Fence / trees / school
Vegetation	Is there any vegetation/trees on or close to site (if yes describe locations, type, maturity, etc) Is there any evidence of poor health / distress?	Yes/~~No~~ ~~Yes~~/No	Most of site colonised by grass and scrub. Mature oak tree in southeast corner.
Ground Surface	Are there areas of hardstanding and estimate the split between hard and soft cover. (If yes describe locations, types and conditions). Is the any evidence of any spillages or staining?	Yes/~~No~~ ~~Yes~~/No	Majority of the site comprises hard standing. Eastern portion (c.20%) appears to be earth with grass cover.
Site Drainage	Are there any drain covers / soakaways (if yes describe locations) Are there any outfalls/water courses on site (note the condition of water courses in open water courses. discolouration, odour, eutrophication, oily sheen, gas bubbling water, clear or cloudy) Where a watercourse runs alongside or crosses a site are there any differences in visible water quality upstream and downstream of the site?	~~Yes~~/No ~~Yes~~/No ~~Yes~~/No	
Electrical Equipment	Are there any electricity sub stations on or adjacent to the site? Are there any electrical transformers, capacitors, pylons etc on site?	~~Yes~~/No	

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Buildings	Description of Buildings, including age, state of repair, materials used in construction. Is there any evidence of asbestos construction materials e.g. roofing, insulation materials. Do any buildings have basements? Do any buildings have a boiler room (if yes, describe fuel type and storage arrangements)?	 ~~Yes~~/No N/A N/A	Remains of two brick buildings evident.
Landfilling	Is there any evidence of gas protection measures (gas protection measures (gas membrane, gravel-filled trenches, venting pipes, etc)?	~~Yes~~/No	
Process Air Emissions	Point Source: Are there any stacks / vents / cooling towers / abatement equipment? Fugitive Source: is there any stockpiled material / windblown dust / vapour process?	~~Yes~~/No ~~Yes~~/No	
Storage of fuels & Chemicals	Are there any drums / containers (if yes, describe quantity, full /empty, stored on hard standing / soft landscaping, bunding)? Are there any above ground fuel tanks (if yes, describe locations, volumes, how many, bunding, used / disused, condition?) Is there any evidence of underground fuel tanks (fuel pumps, covers, vent pipes, how many and how large, fill point, used / disused, and condition)?	~~Yes~~/No ~~Yes~~/No ~~Yes~~/No	
Accidents	In the event of a large spillage would runoff affect any vulnerable watercourse/culverts? Are emergency procedures / equipment in place?	~~Yes~~/No ~~Yes~~/No	

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Waste	Are there any waste skips present on site? Are waste storage facilities adequate? Is there any litter/fly tipped material?	~~Yes~~/No Yes/~~No~~ Yes/~~No~~	A few rubble sacks / remains of fires evident.
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	~~Yes~~/No	
Access / Further Investigations	If a Phase 2 Investigation is likely to be required, describe any access problems including headroom where relevant, services, overhead cables, restricted access areas, confined spaces, trafficked areas, etc that are likely to affect investigation scope/techniques. Identify possible site office and storage locations. Identify possible water supply	~~Yes~~/No	The site is easily accessible from Busker Lane. Overhead clearance at the entrance approximately 2.5m due to trees – may require some pruning for plant access.
Site Environs	Are there any local features that could have a harmful influence e.g. landfill, industrial processes, railway land? Are there any sensitive water features/courses near to the site?	~~Yes~~/No ~~Yes~~/No	
Local Knowledge / Anecdotal Evidence			
Site Dimensions	Describe shape of Site in plan and measure dimensions.		The site is roughly square and occupies approximately 0.5ha.

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APPENDIX 4

REPORT LIMITATIONS

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LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2016 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions, which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered, which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.