Earth Environmental
& Geotechnical

Phase 1 GeoEnvironmental

Desk Study

PROJECT ACORN

5th March 2013

On behalf of:

GOOD CLIENT

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APPENDICES

1. INTRODUCTION

1.1 Introduction

On the instructions of the Engineer, Structural Limited and on behalf of the Client, a Phase 1, Environmental and Geotechnical Assessment was carried out by Earth Environmental & Geotechnical Ltd (EEG) at 63 Somewhere Lane, Bournemouth.

The Site is situated between the Winton and Talbot Village areas of Bournemouth.

When visited on 16th March 2013, the Site was in the process of being developed.

It is understood that the new building being constructed within these grounds, at the time of this assessment, is to consist of a two to three storey development comprising seven, two storey flats in a single block constructed in rendered blockwork and completed with a pitched tiled roof.

1.2 Scope of Investigation & Environmental Assessment

1.2.1 Environmental Aspects

The scope of the works comprised a desk based review to address potential contamination risks with respect to soil, groundwater and ground gas on and in the vicinity of the site. This consisted of a review of the site history, establishing the environmental setting of the site relevant to contaminated land. When completed by a site walkover survey, an initial conceptual model has been compiled and preliminary qualitative risk assessment made of pollutant sources, pathways and receptors.

In terms of contamination, this study is intended to constitute a Phase 1 Environmental Assessment under British Standard 10175:2001 '*Investigation of Potentially Contaminated Sites – Code of Practice'* and follows the guidelines outlined in CLR11: *Model Procedures for the Management of Contaminated Land.*

On the basis of these findings and conceptual model, a preliminary risk assessment with respect to potential ground contamination has been made.

1.2.2 Geotechnical Aspects

The purpose of the desk study was aid identification of the likely ground and groundwater conditions, together with geological features, that may impact on the study site, as site development proceeds.

2. ENVIRONMENTAL ASSESSMENT

2.1 Site Description

2.1.1 Site Location and Setting

The Site is close to Bournemouth University and located at the northern end of Somewhere Road, adjacent to Somewhere Else Road.

The Site is centred on National Grid Reference, Easting 400000, Northing 935000.

In plan, the Site is broadly triangular with maximum dimensions of approximately 500m by 500m and an area of 2.5 hectares.

At the time of the assessment the new development was under construction.

2.1.2 Surrounding Land Use

The immediate area surrounding the Site consists predominantly of residential properties.

To the south-west and north-west the Site is bounded by Somewhere Road and Somewhere Else Road respectively. The gardens of adjacent residential properties bound the Site to the north-east and south-east.

2.2 Desk Study

As part of the Phase 1, Environmental Risk Assessment, an Envirocheck Report was commissioned by Earth Environmental & Geotechnical (EEG). The full report is appended (Appendix 3).

A review of the report follows:

2.2.1 Site History

A review of the Site history has been carried out from historical 1:1250, 1:2500, 1:10000 & 1:10560 scale Ordnance Survey maps and aerial photographs dating from 1870. Table 2.1 below shows the site history and development interpreted from the series of maps obtained from the Landmark Group. The maps are reproduced in Appendix 4.

Year	On Site Uses	Surrounding Site Uses
1870-1877 1889 1872 1888-1889	The Site is shown to be within an area of coniferous woodland.	Coniferous woodland is shown to surround the Site with trackways trending north-west to southeast, to the north-east of the Site. A small *gravel pit* is shown some 200m to the south-west of the Site.
1898 1902 1899 1902-1903	As above.	Coniferous woodland is still shown as present with *Talbot Road*, trending east-west, having been constructed just to the north of the Site. A small *gravel pit* is shown some 50m to the west of the Site.
1909 1910	As above.	Much of the woodland to the north-east and east has made way for residential development. *Gravel pit* 200m to the south-west no longer shown as present. The small *gravel pit* shown some 50m to the west of the Site is still present, together with an additional *pit,* 90m west-south-west of the Site.
1924 1924-1925 1925 1931-1932 1938	Study area is shown as being cleared of woodland, but remains undeveloped.	Stirling Road constructed to the south-west. *Gravel pits* infilled and much of the surrounding area has been developed, primarily with detached residential buildings.
1944 1950 1963	As above.	As above. *Tennis courts* shown to the south-west on the opposite side of Stirling Road.
1951-1968 1974 1975 1987	Site shown as developed with a detached building and smaller out building,	As above.

Table 2.1 Historical Land Use On-Site and Surrounding Area

It is understood that the Site was formerly occupied by a large chalet bungalow together with a detached garage, both now demolished to make way for the new development.

In conclusion no significant potentially contaminative land uses identified either on-Site or in the vicinity of the Site is the area of the former *brickworks* and *clay pits*.

2.2.2 Hydrology (Surface Water & Flood Risk)

Surface Water

There are no surface water features with 500m of the Site.

Flood Risk

The site is not shown to be within or near to a flood risk zone.

2.2.3 Hydrogeology (Groundwater Vulnerability & Source Protection)

Groundwater Vulnerability

The Site is shown to be underlain by a Secondary A aquifer. These include unconsolidated deposits of variable permeability which although not producing large quantities of water for abstraction, are important for local supplies and in supplying base flows for rivers.

The Site soil classification is assumed as one of 'High Leaching Potential (U)'. A worst case vulnerability classification (H) is assumed in the absence of other evidence.

Source Protection

The Site is not situated within a Source Protection Zone.

2.2.4 Abstraction & Discharge Licenses

Details of the abstraction licenses have been obtained from the Envirocheck Report.

There are no water abstraction permits listed within 500m of the Site.

There are no discharge consents listed within 500m of the Site.

2.2.5 Hazardous Substances

No Control of Major Accident Hazards Sites (COMAH), Explosive Sites, Notification of Installations Handling Hazardous Substances (NIHHS), Planning Hazardous Substance Consents or Planning Hazardous Substance Enforcements are listed within 250m of the Site.

2.2.6 Pollution Incidents, Prevention & Control

No significant pollution incidents, prosecutions, pollution prevention and controls are listed within a 250m radius of the study area.

2.2.7 Industrial Land Usage

2.2.7.1 Landfills and Waste Management

Local Authority Landfill Coverage, BGS or other registers list no licensed waste management facilities, waste treatment / disposal sites or historical landfill sites with a 250m radius of the Site.

2.2.7.2 Contemporary Trade Directory

There are no Contemporary Trade Directory entries within 250m of the study area

2.2.7.3 Fuel Sites

There are no fuel station entries listed within 250m of the Site.

2.2.7.4 Historical Land Usage

From the historical maps, no records of the following have been identified within a 100m radius of the Site.

- Above ground fuel tanks;
- Electricity generation;
- Electrical substations;
- Gas industry;
- Gas storage;
- Gas use;
- Oil industry;
- Oil storage;
- Petrol & diesel industry;
- Potential fuel related tanks.

2.2.7.5 Potentially Infilled Land & Marsh

The former *Gravel* Pits some 50m west, 90m south-west and 200m south-west of the Site are the only areas of potentially infilled land identified from historical maps.

The geological map of the area (BGS, 1991) indicates no areas of made ground or worked out clay or gravel pits significant enough to register within 250m of the study area. However the Site Sensitivity Map (Slice A) shows the former gravel pit to the west of the Site as a BGS Recorded Mineral Site. This is listed as the Talbot Road Site, 55m to the west of the Site, as being opencast and formerly extracting sand and gravel from the Branksome Sand Formation

2.2.8 Sensitive Land Use

No areas of designated sensitive land use are listed within 250m of the Site.

2.2.9 Radon

The Health Protection Agency states that the Site does not lie within a radon affected area as less that 1% of homes in the area are above the Action Level with respect to Radon gas.

Based on a more detailed assessment by the British Geological Survey (BGS), it is stated that no radon protection measures are necessary in the construction of new dwellings or extensions.

2.2.10 Geology

2.2.10.1 Underlying Geology

Sheet 329 *Bournemouth (Solid & Drift Edition)* shows the Site to be immediately underlain by sand and gravel deposits of the Eleventh River Terrace of the River Stour. This overlies the Branksome Sand Formation at depth.

2.2.10.2 Ground Stability Hazards

The BGS Information Services provides the following relevant on-site, ground consistency hazard assessments:

- no collapsible stability hazard;
- no compressible ground stability hazard;

- no ground dissolution stability hazard;
- no landslide ground stability hazard;
- low running sand stability hazard;
- no shrinking / swelling clay stability hazard (on-site);
- no shallow mining hazard.

With respect to concrete in aggressive ground, the underlying geology is not listed as a formation known to contain pyrite (Box C6; BRE, 2005) and is not considered likely to contain significant quantities of sulphates.

2.2.10.3 Foundation Design

Both the sand and gravel of the River Terrace Deposits and the sand of the Branksome Sand Formation typically have the strength potential to provide bearing capacities for shallow spread foundations, adequate for multi-storey construction.

It is unlikely that the underlying strata would be shrinkable and therefore the risk from vegetation induced desiccation and hence shrinkage and heave of the underlying strata is considered minimal.

2.3 Site Walkover Observations

The Walkover Survey was carried out on the 13th March 2013. A photographic record is presented in Appendix 1.

Description of Vicinity of Site

The Site is located between the Talbot Village and Winton Areas of Bournemouth. Immediately adjacent to the north-western and south-eastern Site boundaries, residential properties and associated gardens were observed. To the north and south-west, the site was seen to be bounded by Somewhere Road.

From the Walkover Survey, no potential off-site sources of contamination were apparent.

Description of Site

The study Site consisted of an approximately rectangular area measuring 500m (north-west to south-east) by 500m (north-east to south-west).

The general topography of the Site was seen to rise gently north to south by an estimated 1.5m.

At the time of the Walkover Survey, the Site had been cleared and the new development was under construction.

No evidence of contamination, potential contaminative sources or previous contaminative uses was identified either on, or immediately adjacent to, the Site during the Walkover Survey.

2.4 Conceptual Model

In line with current UK Guidance a Conceptual Model has been produced for the Site. A Conceptual Model is used to evaluate the risks posed by contaminants to human health and the environment. The model is reviewed and appropriately amended as further information, for example as a result of intrusive investigation, becomes available. The model typically comprises text, tables and illustrations where appropriate. The Conceptual Model forms the first stage of a risk assessment, and is qualitative.

Potential sources of contamination and receptors that could be significantly impacted by any contamination are identified. Potential pathways connecting the source and receptor are also reported. If a source, pathway and receptor are identified this forms a plausible or complete pollutant linkage, and thus potentially an unacceptable risk may exist. If complete pollutant linkages are identified, further work may be justified in order to quantify the potential risks.

The information from the desk study and walkover is used together with the experience of Earth Environmental & Geotechnical Ltd to form the Conceptual Model for this Site.

Sources, pathways and receptors are identified in turn and the likelihood of complete pollutant linkages that comprise the Site Conceptual Model are presented in Table 2.2.

2.4.1 Contamination Issues – Source Characterisation

<u>Soil Contamination</u>

No on-site activities have been identified, that might lead to contamination of the ground within or adjacent to the Site area.

Potential contaminative activities and pollutant sources may include:

- made ground / contaminated ground, redeposited;
- asbestos within previous buildings and structures;

Furthermore, no off-site activities, have been identified that might lead to contamination of the ground within or adjacent to the Site area. However, naturally occurring contaminative sources may be present as follows:

- naturally occurring aggressive ground conditions, in the form of sulphates and/or an acidic ground environment, with respect to placement of below ground concrete.

Groundwater Contamination

The Site underlain by a Secondary A aquifer and is within an area of variably permeable soils with an assumed high leaching potential. There is therefore a very limited potential for the groundwater to have been impacted by the above sources.

Ground Gas

Ground gas can be produced from a number of potential sources as detailed below:

- naturally occurring radon gas (low risk);
- significant thicknesses of organic soils producing harmful ground gas gases. However from the researched geology, the presence of organic soils is considered unlikely (low risk);
- infilled land, adjacent infilled land, landfill, contaminated land or deposits of made ground are potential gas and vapour contamination sources (low risk).

2.4.2 Potential Pathways

Statutory guidance for Part IIA, DETR Circular 02/2000, defines a Pathway as *"one or more routes or means by, or through, which a receptor: (a) is being exposed to, or affected by, a contaminant; or (b) could be exposed or affected".*

It is considered that a number of potential pathways for contaminant impact could exist:

- The underlying minor aquifer (groundwater);
- vadose zone;
- surface water;
- direct contact;
- airborne dust.

2.4.3 Potential Receptors

The statuary guidance for Part IIA, DETR Circular 02/2000 defines receptor as:

"either (a) a living organism, a group of organisms, an ecological system or a piece of property which (i) is in a category listed in Table A as a type of receptor, and (ii) is being, or

could be harmed, by a contaminant; or (b) controlled waters which are being, or could be, polluted by a contaminant".

The following receptors were identified as potentially at risk:

- underlying minor aquifer;
- the buildings in the area (proposed);
- future construction workers;
- future users of the site.

2.4.4 Conceptual Model Considering Potentially Significant Pollutant Linkages (SPL)

Conceptual Model and Potential SPL's are outlined in Table 2.2 overleaf:

2.4.5 Limitations and Uncertainties

Based on the available information, the Conceptual Model shows the presence of no significant pollutant source – pathway – receptors linkages.

However this does not discount the possibility that areas of, or concerns over contamination may arise as construction of the new development proceeds. In this eventuality, work should cease, appropriate expertise consulted and, if appropriate, investigation and further risk assessment carried out.

Source (Distance / Location / Direction)	**Potential Contaminant**	**Pathway**	**Receptor (Distance / Location / Direction)**	**Significant Pollutant Linkage**	**Hazard Assessment**	**Comments & Interpretation**
Underlying Soil (On-site) Made Ground; redeposited material, unidentified contaminative processes .	• Metals; • Inorganic contaminants; • Organic contaminants; • Asbestos; • Other non-specific contaminants	• Dermal contact • Indirect / direct inhalation • Indirect / direct ingestion • Plant Uptake • Migration – leached contaminants migrate through soil	• Minor aquifer • Construction workers • Future site users; • Persons / property adjacent to Site. • Plant growth. • MDPE pipes	X	Hazard potential severity Moderate Likelihood of Occurrence Low Risk Classification **Low**	No evidence of historical on and off-site contaminative processes or potential sources identified with Phase 1, Desk Study.

Source (Distance / Location / Direction)	**Potential Contaminant**	**Pathway**	**Receptor** (Distance / Location / Direction)	**Significant Pollutant Linkage**	**Hazard Assessment**	**Comments & Interpretation**
Naturally occurring ground conditions Made ground	Sulphate content and acidic ground conditions	Direct contact	Proposed building (below ground concrete)	✗	Hazard potential severity Low Likelihood of Occurrence Low Risk Classification **Low**	Underlying geological strata are not considered to contain significant quantities of sulphates (BRE, 2005)
Impacted Groundwater	Various contaminants as detailed above leached from impacted soil. If contamination is present surface water may be impacted.	Surface water run-off	Surface water receptors.	✗	Hazard potential severity Low Likelihood of Occurrence Low Risk Classification **Low**	Nearest surface water receptor >250m from Site.
	Various contaminants as detailed above leached from impacted soil. If contamination is present groundwater may be impacted; potentially high leachability of contaminants (if present).	Vertical migration. Lateral migration.	Groundwater (minor aquifer). Persons / gardens adjacent to site.	✗	Hazard potential severity Low Likelihood of Occurrence Low Risk Classification **Low**	No evidence of historical on and off-site contaminative processes or potential sources identified with Phase 1, Desk Study.
Impacted Groundwater (continued)	Migration of contaminants to Site from adjacent non-specific off-site sources.	Surface water run-off Groundwater at depth.	• Construction workers; • Future site users; • MDPE pipes	✗	Hazard potential severity Low Likelihood of Occurrence Low Risk Classification **Low**	No specific off-site source of significance identified within Phase 1, Desk Study.

Source (Distance / Location / Direction)	**Potential Contaminant**	**Pathway**	**Receptor** (Distance / Location / Direction)	**Significant Pollutant Linkage**	**Hazard Assessment**	**Comments & Interpretation**
Ground Gas On-site and adjacent areas of infilled ground, landfill (pit / quarry etc).	• Landfill gases (methane, carbon dioxide, carbon monoxide, hydrogen sulphide) • Volatile organic compounds (VOC's)	Lateral migration Vertical migration	Humans within future buildings Future buildings	✕	Hazard potential severity High Likelihood of Occurrence Low Risk Classification **Low**	Gravel pit **50m** to west infilled by 1924.
Significant thicknesses of organic soils.	• Methane, carbon dioxide, carbon monoxide, hydrogen sulphide.	Lateral migration Vertical migration	Future buildings Humans within future buildings	✕	Hazard potential severity High Likelihood of Occurrence Low Risk Classification **Low**	Organic soils not anticipated in this area.
Source (Distance / Location / Direction)	**Potential Contaminant**	**Pathway**	**Receptor** (Distance / Location / Direction)	**Significant Pollutant Linkage**	**Hazard Assessment**	**Comments & Interpretation**
Naturally produced radon gas	Less than 1% of homes are above action level.	Vertical migration	Humans within future buildings	✕	Hazard potential severity High Likelihood of Occurrence Low Risk Classification **Low**	Accumulation of potentially harmful (poisonous) gases. Based on detailed assessment by the British Geological Survey (BGS) no radon protection measures are necessary in the construction of new dwellings or extensions.

Table 2.2 Preliminary Conceptual Model

3. SUMMARY OF FINDINGS AND RECOMMENDATIONS

3.1 In summary the study has identified no pollutant-pathway-receptors of significance.

3.2 The possibility that areas of, or concerns over contamination may arise as construction of the new development proceeds, should not be discounted. In this eventuality, work should cease, appropriate expertise consulted and, if appropriate, investigation and further risk assessment carried out.

3.3 The Site is shown to be immediately underlain by River Terrace sand and gravel deposits overlying the Branksome Sand Formation at depth.

3.4 Both the sand and gravel of the River Terrace Deposits and the sand of the Branksome Sand Formation typically have the strength potential to provide bearing capacities for shallow spread foundations, adequate for multi-storey construction.

3.5 It is unlikely that the underlying strata would be shrinkable and therefore the risk from vegetation induced desiccation and hence shrinkage and heave of the underlying strata is considered minimal.

4. REFERENCES

B.R.E. (2005).

Concrete in Aggressive Ground, Special Digest 1. Third Edition. BRE Construction Division, London.

British Geological Survey (1991).

Bournemouth (Solid & Drift) Sheet 329. Keyworth, Nottingham: British Geological Survey.

British Standards Institute (2001)

BS10175: *'Investigation of Potentially Contaminated Sites – Code of Practice'.*

British Standards Institute (1999)

BS5930 + A2 (2010): *'Site Investigation – Code of Practice'.*

CIRIA (2007).

Assessing risks posed by hazardous ground gases to buildings. Construction Industry Research Information Association (CIRIA) Report C665, London.

Environment Agency (2004)

Model Procedures for the Management of Land Contamination. Contaminated Land Report (CLR) 11

Appendix A.1

Walkover Survey Site Photographs

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SITE PHOTOGRAPHS

Job No. A0170	**Site:**	Project Acorn	

Ref.:	BH01	**Description:**	Borehole 01 location.

Ref.: BH02	**Description:** Borehole 02 location.

Appendix A.2
Walkover Notes

WALK OVER SURVEY REPORT

Site: Project Acorn **Date:** 13 March 2013

Job No: A0170 **Undertaken By:** Adam Czarnecki

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 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)		Area predominantly industrial, with light engineering, warehouses, stores. Located within Anchorage Park Industrial Estate. Site currently vacant although some cars are stored in car park at front. Main buildings show extensive fire damage, together with fire damaged vehicles inside buildings.
Evidence of Past Activities	Are there: Any relevant street names in area? Features or relics which indicate past history?	 Yes/~~No~~ ~~Yes~~/No	*Airport Service Road* 100m to south of Site
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		Site within area of flat, relatively low lying land formerly forming flood plain to *Broom Channel.*
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	.
Ground Conditions	Is there any evidence of: Mining, Mine entries Subsidence Landslip/slope erosion Former investigation works	 ~~Yes~~/No ~~Yes~~/No ~~Yes~~/No	

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 (f 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, SSI etc)		To the north and east of the Site is a Depot for the National Health Service (*Community Equipment & Resource Centre*) Immediately to the south and west are concrete hardstanding areas for container storage and stores for a metal finishing business. A large cylindrical storage tank was observed adjacent to the northern boundary and is understood to contain water for the NHS building sprinkler system. The Site is demarcated by steel link and Heras fencing. No potentially environmentally sensitive features or uses apparent.
Vegetation	Is there any vegetation/trees on or close to side (if yes describe locations, type, maturity, etc) Is there any evidence of poor health / distress?	~~Yes~~/No ~~Yes~~/No	
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~~	No soft landscape areas. Yard and car parking areas predominantly laid to concrete with some bituminous macadam. Interior of pottery building – concrete slab. Considerable fire damage inside building including burnt-out cars may have led to sub-slab contamination.
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 (e.g. 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	Drain covers noted adjacent to south-eastern elevation of building.
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 eg 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~~ ~~Yes~~/No ~~Yes~~/No	Corrugated steel clad, portal framed, industrial styled building with twin pitched roof in poor state of repair owing to fire damage. Asbestos cement sheet in poor condition noted, cladding some of the internal walls Some cracking distress to concrete slab inside building. Asbestos cement sheet roofing to buildings.
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	Pont Source: is 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	Bunded steel oil tank noted adjacent to south-east elevation of the building. Bunding consisting of brick and blockwork and apparently in good state of repair. Above ground water tank for NHS sprinkler system (see above). No evidence of UST's
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~~/NA	
Waste	Are there any waste skips present on site? Are waste storage facilities adequate? Is there any litter/fly tipped material?	~~Yes~~/No N/A Yes/~~No~~	Debris from fire damage remains.
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	~~Yes~~/No	

Desk Study features checked during site visit	**Feature and Information required**	**Present**	**Description / Comments**
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~~ N/A N/A	Service check carried out in proposed borehole locations. Potentially dangerous / unstable building due to fire damage.
Site Environs	Are there any local features that could have a harmful influence eg landfill, industrial processes, railway land? Are there any sensitive water features/courses near to the site?	~~Yes~~/No ~~Yes~~/No	
Local Knowledge / Anecdotal Evidence			PCC Senior Environmental Protection Officer indicated Site may have been bombed in the past.
Site Dimensions	Describe shape of Site in plan and measure dimensions.		Main building footprint measures 32m square. Maximum dimensions of car park area / storage apron measures 42m square.

Appendix A.3
Site Plans

Appendix A.4
Envirocheck Report

Appendix A.5
Limitations

1. This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Earth Environmental & Geotechnical Ltd being obtained. Earth Environmental & Geotechnical Ltd accepts no responsibility or liability for the consequences of this document in part or in whole being used for any other purpose than that for which it was commissioned. Any persons so using or relying upon this document such other purpose does so at their own risk. Earth Environmental & Geotechnical Ltd accepts no responsibility or liability for this document other than to the person or organisation by whom it was commissioned.

2. The findings and opinions given in this document are subject to the limitations imposed by employing normal Phase 1 Desk Study assessment methods and techniques. They are relevant to the dates when the assessment was undertaken, but should not necessarily be relied upon to represent conditions at a substantially later date. The opinions, where included herein, are based primarily upon information obtained during the assessment and from our experience; if additional information becomes available which might impact upon our stated opinions we request the opportunity to review such information and modify our opinions if necessary.

3. The findings and opinions conveyed via this report are based on information obtained from a variety of sources as detailed in this report, and which Earth Environmental & Geotechnical Ltd believes are reliable. Nevertheless, Earth Environmental & Geotechnical Ltd cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

4. Unless otherwise stated in this document, the assessment has been carried out to current accepted national and international standards, guide lines and legislation. No liability can be accepted by Earth Environmental & Geotechnical Ltd for the effects of any future changes to such guidelines and legislation.