Earth Environmental
& Geotechnical

Phase 1 Environmental Desk Study

2 Hermit Place/Rear of 246 Belsize Road

October 2016

On behalf of

Grosvenor Square Estates

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Stockport, SK5 6DA

Tel : 0161 9756088

Email info@earthenvironmental.co.uk
www.earthenvironmental.co.uk

2 HERMIT PLACE/REAR OF 246 BELSIZE ROAD

LONDON

PHASE I ENVIRONMENTAL DESK STUDY

FOR

GROSVENOR SQUARE ESTATES

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK5 6DA
Tel 0161 9756088

Report No. A1451/16 **October 2016**

Report Title:	**2 Hermit Place/Rear of 246 Belsize Road** **Phase I Environmental Desk Study**
Report Reference:	**A1451/16**
Client:	**Grosvenor Square Estates**
Issue Date:	**27th October 2016**
Drafted By:	**J Harris**
Reviewed By:	**A Ward**
Authorised By:	**A Czarnecki**

Earth Environmental & Geotechnical

CONTENTS

APPENDICES

TABLES

FIGURES

1.0 INTRODUCTION

Appointment

1.1 Earth Environmental & Geotechnical was commissioned by Grosvenor Square Estates (the client) to undertake a Phase 1 Environmental Desk Study at 2 Hermit Place/Rear of 246 Belsize Road.

1.2 It is understood that a planning application is in process for a residential conversion of a pre-existing property.

1.3 A Phase 1 Geo-Environmental Investigation is required to support the planning application.

Objective

1.4 The purpose of the Phase 1 Report 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 in accordance with the Environment Agency (2004) Model Procedures for the Management of Land Contamination, CLR11, if required.

Scope

1.5 The Phase 1 Environmental Desk Study comprises of a review of the following information sources:

- 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

2.1 The site is currently an existing residential three storey property which includes a dry cleaners on the ground floor. This dry cleaners is a drop-off and collection point only, with all cleaning processes being conducted offsite.

Site Location

2.2 The site is located approximately 100m northeast of Kilburn High Road London Overground Station, with the train line running southwest-northeast approximately 50m from the property parallel to Belsize Road. The approximate National Grid Reference for the centre of the site is TQ255836 at postcode NW6 4BT.

2.3 The site occupies approximately 0.01ha of a parcel of land which is approximately rectangular, on the west of Belsize Road. The site lies within a mixed residential and commercial area and is bounded by buildings on either side.

2.4 A location plan is shown below as Figure 1.

Figure 1: Site Location Plan

2.5 An existing site layout image is shown below in Figure 2.

Figure 2: Existing Site Layout

2.6 The site is accessed from Belsize Road,100m north-east from the junction connecting to the A5.

2.7 The area surrounding the site is generally flat lying.

Site Utility Services

2.8 A site service plan has been not provided by the client. 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 site is not recorded as lying on infilled ground, however as the site lies within an urban area some made ground is anticipated.

3.4 According to the British Geological Survey (BGS) there are no records of superficial materials below the site.

3.5 Bedrock is shown to be clay, silt and sand of the London Clay Formation. These rocks are described by the BGS as:

> *'mainly comprising bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay.'*

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

3.7 There are no records of any faults within 500m of the site boundary.

3.8 There are 13 borehole records within 250m of the site in the BGS boreholes database, the closest being approximately 116m south. This borehole TQ28SE335 shows a shallow depth of made ground underlain by various layers of clay and sandy clays.

3.9 The site is in an area where the hazard rating is negligible or very low with regard to landslides, ground dissolution, collapsible deposits, compressible deposits and running sands.

3.10 The site is in an area where the hazard rating is moderate with regard to shrink/swell clays. The BGS state:

> *"Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present."*

Groundworkings

3.11 There are no historical records indicating surface groundworks upon the site.

3.12 There are 2 records of historical surface groundworks cuttings 188m and 202m.

3.13 There are several historical underground working features within 1000m of the site, consisting of air shafts and tunnels.

3.14 There are no current BGS ground workings within 1000m of the study area.

3.15 No historical railway or tunnel features have been identified within the site boundary.

3.16 There are 33 records of historical railway and railway sidings ranging from 33m to 226m south of the site, 11 of which are within 50m of the site boundary to the south-east.

3.17 No active railway or tunnel features have been identified within the site boundary.

3.18 There are 23 records of active railway lines within 250m of the study area, 10 of which are within 75m of the site boundary to the south-east.

3.19 The site is within 5km of the route of the High Speed 2 rail project.

3.20 The site is not within 500m of the route of the Crossrail 1 rail project.

Mining and Other Underground Workings

3.21 There are several historical mining areas within 1km of the study areas identified as air shafts east of the site.

3.22 There are no historical mining areas, coal mining areas, gypsum extraction, tin, clay mining or clay mining areas within 1km of the site.

3.23 There are no records for natural cavities, brine extraction areas, gypsum extraction areas, tin mining areas or clay mining areas within 1km of the site.

3.24 Reference to the Coal Authority interactive map shows that the site does not lie within a Coal Mining Reporting Area.

3.25 No underground railway lines or tunnels are identified within 250m of the site on historical mapping.

Radon Potential

3.26 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.

3.27 No radon protection measures are necessary.

Hydrogeology and Hydrology

3.28 The bedrock beneath the site is classified as unproductive strata: *"These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow".*

3.29 There are no records for potable water, groundwater or surface water abstraction licences within 1km of the site.

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

3.31 There are no groundwater Source Protection Zones within the confined aquifer within 500m of the site.

3.32 There are no detailed river networks within 500m of the site.

3.33 There are no surface water features recorded within 250m.

3.34 There are no chemical or biological river quality records within 1.5km of the site.

Landfill and Waste Management Activity

3.35 1:10,000 scale historical OS mapping identifies a number of features indicative of potential infilled land over 188m from the site. These relate to cuttings and a pond. There are no indicative features on the site itself.

3.36 The closest Environment Agency (EA) record for a historical landfill is 1.2km to the northeast of the site. There are no EA records of current landfill within 1km.

3.37 There are no records of BGS/DoE non-operational landfill sites within 1.5km of the site.

3.38 There are no records of landfill (or other waste site) from Local Authority records and historical mapping within 1.5km.

3.39 There are no records of waste treatment, transfer or disposal sites within 500m of the site, based on historic mapping.

Industrial Land Use Information

3.40 1:10,000 and 1:10560 scale mapping identifies 42 sites of historically contaminative uses within 500m of the site. These include railway sidings, railway stations, cuttings, smithies, railway buildings, coal depots, rifle ranges and telephone exchanges. There are no records of historically contaminative uses on the site itself.

3.41 The historical tank database contains no record of any unspecified tanks on site, however there are14 recorded historical tanks over 100m from the site.

3.42 There are 94 records of historical energy features identified, the closest are 11 electricity substations between 41-67m northeast and southwest from the site, shown on mapping from 1968 to 1994.

3.43 There are historical petrol and fuel sites within 500m of the site.

3.44 There are 27 historical garage and motor vehicle repair sites within 500m of the site boundary. The closest relates to a garage 317m to the north of the site in 1953 and 1955.

3.45 Current industrial data for potentially contaminative uses on the site shows an active dry cleaners occupying the ground floor of the site property. Current industrial data for potentially contaminative uses within 250m of the site shows two vehicle repair testing and servicing workshop 10m to the southwest and 17m to the west of the site. Other entries further afield include, beds and bedding sales, container and storage, unspecified works or factories, baking and confectionary, electrical features, business parks and industrial estates, railway stations, junctions and halts, vehicle hire and rent and published goods.

3.46 There are no records of a petrol or fuel site within 500m of the site.

3.47 There is 1 National Grid high voltage underground electricity transmission cables 156m to the southwest of the site. There are no records of high pressure gas transmission pipelines within 500m of the site.

Environmental Permits, Incidents and Registers

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

Table 1: 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	3
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

3.49 According to the GroundSure reporting the closest Part A (2) and Part B Activity is for a dry cleaners 184m south-west of the site at 7 Kilburn High Road, however it is known that the site has either historically or currently been used as a dry cleaners.

3.50 The NIRS List 2 records are for one incident which occurred on 14 October 2001, 167m south-west of the site, the pollutant was contaminated water from firefighting run-off and this was recorded to have minor water impact. A second incident occurred on 15 October 2003, 167m south of the site, the pollutant was inert material and waste and was recorded to have minor land impact. A third incident occurred on 28 August 2004 343m east of the site, the pollutant was inert materials and waste and was recorded to have no impact to land, water or air quality.

Environmentally Sensitive Sites

3.51 There are 3 records of Local Nature Reserves within 2km of the site, the closest is St John's Church grounds1.6km to the south-east.

3.52 There are no other designated environmentally sensitive sites within 2km of the site.

3.53 It should be noted that an ecological assessment of the site falls outside the brief of this report and that an ecological specialist should be consulted in this regard.

Archaeology

3.54 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

3.55 A detailed flood risk assessment is outside the scope of this report. However, the site is not within 250m of an EA Zone 2 or Zone 3 floodplain. The highest risk of flooding on site is very low.

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

3.57 According to the BGS there are no areas within 50m of the site boundary that may be susceptible to flooding from groundwater with some potential of flooding below the ground surface.

Previous Site Investigations

3.58 A site investigation was conducted by Earth Environmental & Geotechnical Ltd within a small patio area at the rear of 246 Belsize Road.

3.59 Staff attended the site on the 23rd September 2016 and exposed ground conditions in the rear court yard area (2m^2).

3.60 The material that was exposed was a clay, the London Clay, with no made ground present.

3.61 The chemical testing results (Appendix 2) shows an absence of any potential contaminants of concern with respect to a residential land use.

4.0 SITE HISTORY

4.1 The historical development of the site has been determined by reference 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 1850.

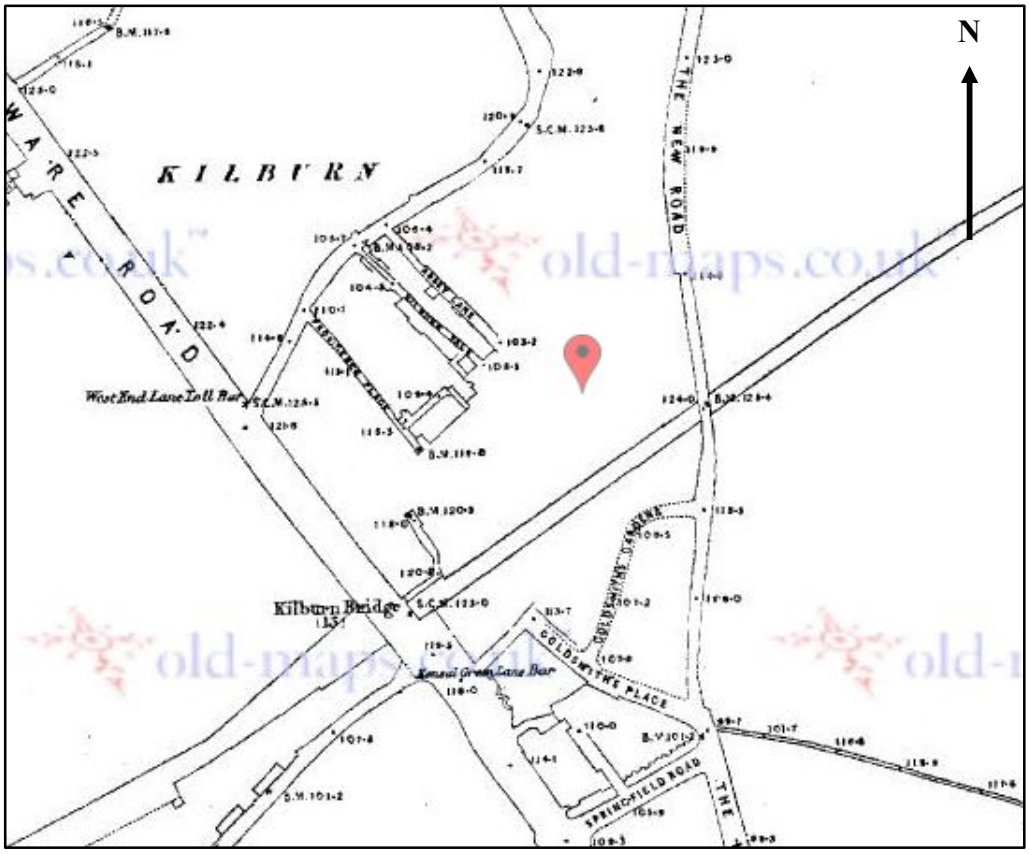
4.2 The site history is summarised in the Table 2 below.

Table 2: Summary of Site History

Date	Site	Surrounding Land Use
1850	Unoccupied.	Agricultural and horticultural area with some residential property. Railway line in cutting running NE-SW shown approximately 40m to the S. Residential housing to NW.
1870-1880, 1872, 1874,	Residential property appears much as it can be found today.	Significant expansion of residential properties in every direction. Recreational park 40m SW. Pond approximately 120m NW. Significant expansion of the railway line running NE-SW. Kilburn railway station approximately 50m south of site.
1874-1882	Site appears much as it can be found today.	No Change
1894	Site appears much as it can be found today.	Recreational park 40m SW is now replaced with Town Hall.
1896, 1915, 1920, 1935-1936, 1937-1938, 1951	Site appears much as it can be found today.	Town Hall replaced with theatre and Priory Works in 1896.
1954, 1955, 1957, 1966-1968, 1970, 1972, 1974-1975, 1984, 1985, 1991-1996	Site appears much as it can be found today.	Theatre replaced with warehouse and club.
Google Earth 2015	Site appears much as it can be found today.	Area appears much as it can be found today.

4.3 Selected extracts from historical maps and aerial photographs are presented in the following figures below:

Figure 3: Site Location shown in 1850 and in 2015



5.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

5.1 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).

5.2 The table in Paragraph 5.4 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).

5.3 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.

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

Table 3: Preliminary Conceptual Model

Source	Pathway	Receptor	Linkage	Comment
The likelihood of significant soluble and/or liquid and therefore mobile contaminants occurring at the site due to its past and current use. The risk is considered **LOW**.	Direct downward migration through leaching and/or mobile liquids.	Groundwater	Unlikely	Mobile contamination may be present, however, the underlying ground appears most likely to be largely impermeable and there are no significant sensitive receptors. The perceived risk to groundwater is **LOW.**
	Off-site migration in groundwater or surface water flow.	Surface water	Unlikely	There are no nearby surface water features, or surface water abstractions. The perceived risk to surface water is considered **NEGLIGIBLE**.
		Groundwater / surface water abstractions	Unlikely	The site is underlain by unproductive strata and there are no nearby abstractions. The risk to water abstractions is considered **NEGLIGIBLE**.
		Adjacent Properties	Unlikely	The preliminary risk to adjacent properties is considered **NEGLIGIBLE.**
		Ecology	Unlikely	The risk to ecology is therefore considered **NEGLIGIBLE.**

Made ground associated with historical development may be present on and in the vicinity of the site. The likelihood of significant ground contamination sources being present at the site is considered **LOW**.	Direct contact, ingestion of soil, dermal contact, dust exposure pathways.	Current Site Users	Unlikely	The risk to current site users via direct exposure is considered to be **LOW**.
		Adjacent Land Users	Unlikely	The risk is considered **LOW**, although usual dust control measures should be implemented as part of good site working practices during construction.
		Construction Workers	Possible	Assuming appropriate Health and Safety measures are adopted during the works, a **NEGLIGIBLE** preliminary risk to construction workers is identified.
The likelihood of significant volatile contaminants occurring at the site is considered **LOW to MEDIUM**.	Inhalation of harmful vapours (indoor and outdoor airspaces)	Current/Future Site Users	Unlikely	Recognising the nature of the site, it is unlikely that there will be a build-up of any harmful gases or vapours. The risk associated with current site users is considered to be **NEGLIGIBLE.**
		Adjacent Properties	Unlikely	The potential risk to adjoining site users is therefore considered **NEGLIGIBLE.**
The site has been residential since 1850. 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	No significant sources of potentially degradable materials are identified on, the site, though there is some potential for such materials to be present in the made ground. The preliminary risk is therefore considered **LOW**.
	Migration of gases on/off site and collecting in confined spaces on/off site.	Adjoining site users	Unlikely	No significant sources of potentially degradable materials are identified on the site. The potential risk to adjoining site users is therefore considered **NEGLIGIBLE.**
		Current/future site users	Possible	No significant sources of potentially degradable materials are identified on the site. The potential risk is therefore considered **LOW to MEDIUM**.
Chemicals which could prove aggressive to construction materials may be present on site. **LOW.**	Direct contact	Construction concrete, plastic water pipes.	Unlikely	Risks to construction materials can be identified via site investigation prior to the proposed construction works. The perceived risk is considered **LOW**.

Preliminary Risk Assessment

5.5 The site has been occupied by residential buildings since circa 1850, with the ground floor of the current 3 storey building being occupied by an active dry cleaners. The current dry cleaners shop is a drop-off and collection point only, with all cleaning being conducted offsite. Whilst contaminative materials are possible, these are unlikely to be significant regarding the proposed development scenario and therefore the risk arising from the site has generally been assessed as low or negligible.

5.6 The current dry cleaners shop is a drop-off and collection point only, with all cleaning processes being conducted offsite, therefore there are no risks associated with the current land use.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 The likelihood of significant contamination on the site is low.

6.2 There no potential pollution linkages identified associated with the site.

Recommendations

6.3 Due to the nature of the proposed development, a residential conversion where no demolition and minimal construction is intended, further site investigation is not considered necessary.

APPENDIX 1

GROUNDSURE REPORTS

APPENDIX 2

CHEMICAL TESTING

APPENDIX 3

REPORT LIMITATIONS

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.