LMB GEOSOLUTIONS LTD

SITE INVESTIGATION SCHEME

CASTLEWOOD HOUSE & MEDIUS HOUSE, LONDON WC1A

May 2018

DOCUMENT RECORD

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Site	Castlewood House & Medius House, 77-91 & 63-69 New Oxford Street, London WC1A 1DG
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	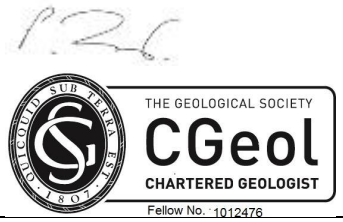

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Introduction

AUTHORISATION

LMB Geosolutions Ltd (LMB) was instructed by COWI UK Ltd (Consultant Engineers) on behalf of Royal London Mutual Insurance Society (the Client) in March 2018 to complete a site investigation scheme in relation to the proposed development at Castlewood House & Medius House, 77-91 & 63-69 New Oxford Street, London WC1A 1DG (the Site).

PROJECT AND SITE DETAILS

Site Address	Castlewood House & Medius House, 77-91 & 63-69 New Oxford Street, London WC1A 1DG. A Site Location Plan is provided as **Figure 1**.
Current Site Use & Layout	Castlewood House currently comprises a T- shaped seven storey building with a two storey basement, mainly beneath the 'L' part of the structure. The structure is bounded by a five storey building on one side occupied by Tony & Guy (east), Earnshaw Street on the west side and enclosed by Bucknall Street to the south of the site. Castlewood House faces onto New Oxford Street. Medius House currently comprises a five storey superstructure with a single storey basement. The structure is bounded by Tony & Guy building on the west side west and Tyott Street on the east side. At the south there are warehouse and office buildings.
Proposed Development	The development proposals comprise demolition of Castlewood House and partial demolition of Medius House with construction of an eleven storey office building with retail / restaurant use at ground level and enlargement of the existing double basement. At Medius House a two storey roof extension with private roof terraces will be constructed with a change of use from office to residential, but with retail use retained at ground floor level.
Development Planning	The planning permission for the development (ref. 2017/0618/P, April 2018) includes a number of conditions and Conditions 14 requires provision of a site investigation scheme, as follows: *At least 28 days before the commencement of works within the relevant phase (a) Castlewood House; (b) Medius House, a written detailed scheme of assessment consisting of site reconnaissance, conceptual model, risk assessment and proposed schedule of investigation must be submitted to the planning authority. The scheme of assessment must be sufficient to assess the scale and nature of potential contamination risks on the site and shall include details of the number of sample points, the sampling methodology and the type and quantity of analyses proposed. The scheme of assessment must be*

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	approved by the LPA and the documentation submitted must comply with the standards of the Environment Agency's Model Procedures for the Management of Contamination (CLR11). • *Reason: To protect future occupiers of the development from the possible presence of ground contamination arising in connection with the previous industrial/storage use of the site in accordance with policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26 of the London Borough of Camden Local Development Framework Development Policies.*

AIMS & OBJECTIVES

This document aims to provide a Site Investigation Scheme to satisfy and aid in discharge of Condition 14 of the Planning Permission.

LIMITATIONS

LMB has prepared this report solely for the use of the named Client and those parties with whom a warranty agreement and/or assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from LMB and the Client.

LMB accepts no responsibility or liability for:

a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and

b) issue of this document to any third party with whom an agreement has not been executed.

SCOPE OF INVESTIGATION

Scope of Investigation

INVESTIGATION STRATEGY

The ground investigation was designed based on the specification from the Consultant Engineers. However, the strategy for the land contamination assessment to be completed has been designed by LMB.

The ground investigation may be subject to amendment / alteration based on the findings of the planned Preliminary Risk Assessment (PRA) and conditions encountered during the ground investigation works.

RELEVANT GUIDANCE

The scope of works for the proposed site investigation scheme has been designed with due consideration to current best practice guidance, including the following:

- London Boroughs Publication (undated). A Guide to help developers meet planning requirements.
- Model procedures for the Management of Land Contamination (CLR 11).
- Contaminated Land Statutory Guidance (April 2012).
- BS 10175 (2011) Investigation of Potentially Contaminated Sites. Code of Practice.
- Department of the Environment Industry Profiles.
- Sampling strategies for contaminated land (CLR4)[1]
- Environment Agency/Defra (2002). Priority Contaminants for the Assessment of Land (CLR8)[2]
- CIRIA (2007). Assessing risks posed by hazardous ground gases to buildings.
- CIRIA (2009). The VOCs Handbook.
- NHBC (2007). Guidance on the Evaluation of Development proposals on sites where Methane and Carbon dioxide are present.
- BS 8576:2013. Guidance on investigation for ground gas – permanent gases and Volatile Organic Compounds.
- BS 8485:2015. Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for new Buildings.
- Society of Brownfield Risk Assessment (February 2017). Development of Generic Assessment

SCOPE OF WORKS

The following scope of works is proposed to enable adequate assessment of potential land contamination issues at the site.

[1] This document has been withdrawn but is considered to remain useful in proving technical background for designing ground investigation works.

[2] This document has been withdrawn but is considered to remain useful in proving technical background for designing ground investigation works.

SCOPE OF INVESTIGATION

Desk Study (Preliminary Risk Assessment)

- Completion of a site reconnaissance survey to make a preliminary assessment of the site and potential sources of contamination;
- Review of historical plans for the area to assess historical land uses on and immediately surrounding the site;
- Consultation with the Contaminated Land Officer at London Borough of Camden with a view to commissioning a formal contaminated land enquiry;
- Assessment of the 'sensitivity' of the site location as determined by factors such as hydrogeology, proximity of watercourses, neighbouring land use, ecologically sensitive uses and geology detailed on British Geological Survey (BGS) maps;
- Production of a preliminary conceptual site model; and
- Provision of a Preliminary Risk Assessment outlining potential land contamination issues associated with the proposed development.

Ground Investigation & Assessment

The following scope of works is proposed, pending the findings of the PRA.

- Site set up including liaison with Consultant Engineers, Client and appointment of sub-contractors;
- Mobilisation to site and transport of the rig to the proposed location;
- Completion of 4no. cable percussive borehole drilling to a maximum depth of 50.0m bgl (or refusal) with collection of disturbed and undisturbed samples for laboratory testing;
- Completion of 9no. hand and machine excavated trial pits to a maximum depth of 3.0m bgl (or refusal) with collection of disturbed samples for laboratory testing;
- Field screening of soil samples (headspace) using a Photo-Ionisation Detector (PID);
- Soil sampling based on visual and olfactory evidence of contamination and the results of the PID field screening. As a minimum this will include 1no. sample of Made Ground from each location and 5no. samples of the natural soils from selected locations;
- Installation of dual groundwater and ground gas monitoring wells and return monitoring of groundwater and ground gas levels on 3no. occasions. This may increase depending on the results of the PRA;
- Supervision and geological logging of the soil arisings in accordance with BS5930 by an appropriately experienced geo-environmental engineer;
- Laboratory testing of the soil samples for an appropriate suite of determinands, including heavy metals, petroleum hydrocarbons, Semi-Volatile Organic Compounds (SVOC, including Polycyclic Aromatic Hydrocarbons (PAH)), Volatile Organic Compounds (VOC) and asbestos containing materials (ACM).
- Completion of a factual and interpretive report that will include;
    - Details of the ground conditions encountered;
    - A Generic Quantitative Risk Assessment (GQRA) based on the proposed end use; and
    - Conclusions and recommendations.

SCOPE OF INVESTIGATION

A site investigation plan showing borehole and trial pit locations produced by the Consultant Engineers is appended.

GENERIC QUANTITATIVE RISK ASSESSMENT

The Generic Quantitative Risk Assessment (GQRA) to be completed will consider the proposed development end use (commercial) and current best practice guidance and will include the following elements:

Assessment of Potential Risks to Future Site Users

Soil samples collected during the site investigation works will be scheduled for suite of determinands appropriate to the historical site (and surrounding area) uses identified in the PRA, but as a minimum will include heavy metals, petroleum hydrocarbons, Semi-Volatile Organic Compounds (SVOC, including Polycyclic Aromatic Hydrocarbons (PAH)), Volatile Organic Compounds (VOC) and asbestos containing materials (ACM).

Assessment of Potential Risks to the Water Environment

Potential risks to the water environment will be assessed formally with the PRA, but an initial assessment suggests that sensitive groundwater and surface water receptors are at low risk of impact from the proposed development and any contaminants therein. However, should potential risk be identified in the PRA then the investigation and assessment works will be amended appropriately. As a minimum leachability testing will be undertaken on selected soil samples and will include heavy metals, petroleum hydrocarbons and SVOC (including PAH).

Ground Gas Assessment

A ground gas risk assessment based on monitoring data will be undertaken to assess potential risks associated with bulk ground gases (carbon dioxide and methane) and volatile vapours to future site users and buildings.

The assessment will be undertaken in accordance with the CIRIA Report C665, BS8576:2013, BS8485:2015, NHBC guidance and The VOCs Handbook, as appropriate.

FIGURES