

1 Guilford St
London WC1N 1DR

Construction Method Statement

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1 Introduction

The site is located on the corner of Guilford Street and Brownlow Mews. Proposed basement works at the property are confined to the back half of No. 1 Guilford Street, adjacent properties on Brownlow Mews and Grays Inn Road.

The information in this report is based on a visual survey of the site, architectural drawings provided by Haines Phillips Architects and the Basement Impact Assessment (BIA) completed by Chelmer Site Investigations Ltd dated June 2016. A copy of the BIA (that includes an encompassing site investigation and ground movement analysis) can be found in Appendix A.

In accordance with the London Borough of Camden's requirements for this type of development (notably Camden Development Policy DP27 and Camden Planning Guide for Basements and Lightwells CPG4), this report aims to show that the proposed scheme:

- Maintains the structural stability of the existing building and adjoining structures.
- Does not have a cumulative effect on structural stability in the local area.

2 Surveys and Ground Conditions

Ground investigations completed at the site consisted of 2 No. trial pits dug against existing walls in addition to 2 No. boreholes within the footprint of the proposed basement extension by Chelmer Site Investigation Laboratories Ltd. As part of site investigations completed as part of the development underway at the adjacent property at No. 20 Brownlow Mews, an additional trial pit was also dug against the shared boundary wall.

From these investigations, Made Ground was found to extend to a depth of 5.3 metres below ground level. This is underlain by River Terrace Deposits (clays, sands and gravels) extending to the termination point of investigations at 12.5 metres below ground level. Given the general variability of Made Ground, any vertical load bearing structure will need to be founded within these River Terrace Deposits.

Groundwater was monitored numerous times throughout site investigations, with the highest reading at circa 4.5 metres below ground level. Even though this is below proposed formation level of the basement, a net buoyancy force from one metre of static water pressure has been recommended to be adopted during design.

Refer to the Basement Impact Assessment report prepared by Chelmer Site Investigation Laboratories Ltd dated June 2016 (Appendix A) for further information regarding ground conditions at the site.

3 Proposals and Construction Methodology

Introduction

The existing site consists of a 3 storey structure with mansard roof over the front half of the property with a 1-2 storey closet wing and garage over the back half of the property. An existing basement and light well exists over the front two thirds of the property.

Three adjacent properties border the site that include:

- No. 137a Grays Inn Road. An existing basement is appears to be present at least on the street front, however given no overlap exists between the proposed basement works at No. 1 Guilford Street this is not perceived to have any implications on the proposed works.
- No. 137 Grays Inn Road. The back section of this property consists of a single storey back extension and ground level courtyard – based on a review of historic planning documents no basement exists at this address.
- No. 20 Brownlow Mews. An existing basement is currently present at the boundary to this property, however a second basement is currently under construction at this site. This includes reinforced concrete (RC) underpinning to the existing boundary/party wall that borders the site at No. 1 Guilford Street.

Permanent Works

Refer to Appendix B for a set of proposed plans and sections related to works at basement and ground level. These have been developed based on the current proposed construction methodology and architectural drawings. The permanent works comprise of three key elements:

1. Construction of contiguous bored RC pile walls and capping beam around part of the site perimeter to provide vertical support to both the proposed basement structure and superstructure.
2. Excavation of existing site to basement formation level and construction of an RC box (basement and ground floor slabs with liner walls in between) to ensure retaining support is maintained to the neighbouring properties and highways.
3. Construction of superstructure above ground level (RC frame or load bearing brickwork).

The existing closet wing structures to the rear of the site (including the single storey garage) are to be demolished to allow the proposed works to be completed. The bored RC piles will provide the primary vertical support to the new development and are to found on adequate strata below the Made Ground. Due to potential heaving issues from the proposed excavation, the installation of Cellcore or other heave-reducing substrate is recommended to be installed underneath the basement slab.

When the RC liner walls are constructed, resin anchors into the bored piles will be utilised to provide the required vertical load transfer at the perimeter. Superstructure support points that land inboard of the perimeter will require additional piles to provide support.

A light well is proposed to form part of the new ground floor plan adjacent No. 137 Grays Inn Road – the RC capping beam will therefore be required to resist retaining loads applied to bored piles over a span of approximately four metres.

Temporary Works

Prior to construction the sequencing of work and overall methodology will be discussed in detail with the appointed contractor and temporary works engineer. Particular care will need to be taken with respect to works adjacent existing structures, and in ensuring that vibration and movement during piling and excavation are kept within reasonable limits agreed with the adjoining owners.

Once the appointed temporary works contractor has developed a full construction methodology, this will be reviewed with Chelmer's Site Investigation Laboratories Ltd prior to works commencing on site. The temporary works contractor will be required to appoint a firm to complete movement monitoring of adjacent properties throughout the construction period.

Given the early stage of design, we have prepared the following sequencing of works proposal, to be read in conjunction with sketches numbered SK08 and SK09 within Appendix C.

1. Demolition of Existing Structure

All adjacent structures (where reliant on the existing building for lateral support) will require temporary propping. As part of ensuring movements are kept to within acceptable limits (to mitigate damage to finishes as well as structural damage), movement monitoring points may also be installed on adjacent boundary structures.

The entire closet wing will then be carefully demolished down to existing ground level and any existing ground bearing slabs removed from the footprint. Existing footings on the building perimeter may also need to be removed prior to initiating stage 2.

2. Bored RC Piling and Capping Beam

A suitably experienced piling contractor will form a contiguous RC bored pile wall as indicated on the proposed drawings (refer Appendix B). These will need to be spaced adequately to be able to retain the made ground behind them.

Once the piling is completed, an RC capping beam shall be installed. This ties the piles together to act as a single retaining structure, provides a suitable element to install propping against during stage 3 works and will eventually span locally across the proposed light well in the permanent case.

3. Temporary Propping and Excavation

Once a temporary works design has been completed, propping shall be provided across the proposed basement excavation area between capping beams. These propping elements will need to be positioned below ground level to allow them to prop the RC capping beam at mid depth and provide adequate stiffness to prevent any excessive movement of adjacent building foundations.

Excavation down to formation level will then be completed. As this proceeds additional propping may be required to be installed at or above basement formation level based on ground conditions encountered in order to ensure piles can continue to retain soil behind them.

4. Construction of basement RC Box

As the piles are to provide the primary vertical support to the superstructure, we are required to provide adequate load transfer from the basement RC liner walls to the piles. This will likely be formed from resin anchors into the piles that are cast into the liner walls, which will also help in achieving water tightness requirements.

After the RC liner walls are installed the basement and ground floor slabs can be formed (in addition to any vertical support structure internal from the basement perimeter) - these two slabs will provide the propping required in the permanent case. While both slabs will be effectively suspended, in order to mitigate any heaving effects the basement slab shall be cast on top of a heave reducing substrate (Cellcore for example).

Health & Safety

Health and Safety on site will be managed by the contractor – they will need to carefully consider the risks associated with each task related to the basement construction, particularly when utilising various sub-contractors to complete the proposed works.

Temporary works will need to be planned rigorously, taking into account all required steps in order to eliminate, mitigate or minimise risk.

Site Logistics

Given the narrow nature of Brownlow Mews and the limited access through from Guilford Street (bollards and an overhead building will prevent any large vehicle access from this side), access to the site will need to be carefully planned by the appointed contractor. Particular attention will need to be given to communication with residents of Brownlow Mews to avoid issues related to access.

Site Hoardings and Security

Site hoardings will be erected such that members of the public on Brownlow Mews and 137 Grays Inn Road will be sufficiently protected the proposed works. The hoardings will be made secure, and any access restricted and locked whilst the site is not in use.

Appendix A

Basement Impact Assessment Report
Prepared by Chelmer Site Investigation Laboratories Ltd.
Dated June 2016

Appendix B

Proposed Structural Drawings (SK06, SK07)
Prepared by Price and Myers

Appendix C

Proposed Temporary Works Sequence (SK08, SK09)
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