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## Subterranean Development and Construction Method Statement (CMS)

at

12 Chamberlain Street, London. N1 8XB

Planning Application No. 2011/3773

Project No. 11-130

Project Name. AND (3) 12 Chamberlain St.

Date : 15<sup>th</sup> August 2011

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## Description of Proposals

This Method Statement has been produced to accompany the Planning Application for 12 Chamberlain Street, London. N1 8XB and accompanying drawings nos. 346/PL(3) 102 and 120. The existing building is circa 1890's and consists of a lower ground floor, upper ground floor, first, second and a third floor conversion within the loft space constructed from London stock solid wall masonry walls under a pitched and slated main roof with a flat dormer roof to the rear and a 3 storey rear addition with an attached conservatory. The windows are traditional painted timber sash windows. The foundations have been exposed and consist of a brick spread footing consistent with this period of building.

The proposed works are to extend the property below the level of the existing lower ground floor to form, in effect, a two storey basement as a storage and utility area.

The new deep formation will be formed by underpinning with reinforced concrete walls and foundations in sequence of operations the existing party walls together with the main front and rear walls. Structural steelwork will be employed to support the upper basement construction and intermediate walls above the level of the basement.

## Sequence of Works

Identify and mark existing services. Provide temporary electrical and water.

Access generally will be gained by constructing a safe and hoarded route through the light well at the front and travelling through the existing basement. The hoarding at the front will also be used to house the mechanical conveyors transporting the earth from the rear garden to the waiting skips, under license, in the road at the front.

The new walls being formed under the existing basement will be segmental retaining walls / underpinning and are to be constructed in segments to a maximum of 800mm wide, subject to inspection of the existing foundations and ground conditions.

The retaining walls comprise of two elements, the toe and the stem. The toe is constructed first. A starter bar and kicker form the connection between the toe and the stem. The stem is then constructed on the toe.

The construction sequence is such that the retaining wall/underpinning segments will be separated by a minimum distance of 2000mm, or two fully completed retaining wall/underpinning segments. A sequence of three retaining wall/underpinning segments.

The segmental retaining wall/underpinning segments will be excavated by hand using pneumatic equipment and utilising any support-work necessary to prevent collapse of the excavation.

Reinforcement is to be fixed in accordance with the Structural Engineer's detail. Reinforcement is to be lapped with the adjoining segmental retaining wall/underpinning segment, by embedding the lap bar in the subsoil adjacent to the reveal. The front shutter to form the toe/kicker detail will be erected into which C35 Class 2 concrete will be placed and allowed to part cure.

The front shutter forms the stem of the segmental retaining wall/underpinning segment and will be erected flush with the front face of the kicker and filled with C35 Class 2 concrete.

No segmental retaining wall/underpinning segments are to be left unconcreted overnight.

Before any adjacent segment can be excavated, 48 hours must elapse after completion of the adjacent segment.

The Building Inspector will be informed when the segmental retaining wall operation is underway and will be expected to visit the site as frequently as deemed necessary.

Reinforcement as finally fixed is to be inspected before concrete is placed, however, the segmental retaining wall/underpinning operation is entirely time dependant and is not expected to be stopped awaiting inspection. Where the Building Inspector is unable to inspect, photographs will be taken.

Spoil from the excavations will be transported by a conveyor to a skip situated to the front of the property and will be removed to tip. Concrete shall be ready-mixed where there are three or more segments to be concreted at any one time. Otherwise, concrete will be mixed on site.

The concrete in the stem details is to be allowed to cure for 48 hours prior to commencement of dry-packing.

The void between the segmental wall/underpinning concrete and the existing foundation will be rammed solid with semi-dry 1:3 cement : sharp sand, machine mixed mortar and allowed to cure for 12 hours.

Before any adjacent segmental retaining wall/underpinning segment can be excavated, 24 hours must elapse before completion of the dry-packing. No two adjacent segments can be worked on at the same time.

Once all the retaining wall/underpinning segments have been completed, if necessary the over-hanging existing foundations will be cut away.



### Ground Conditions – S.I. Report

The underlying subsoil has been assumed to be CLAY, however this will be confirmed by a site investigation by bore hole whereby the sub-soil conditions will be recorded to a depth of at least 15.00m. It is considered that this underlying material is suitable for a load bearing capacity of 140Kn/m<sup>2</sup> (1.4 Tonne/ft<sup>2</sup>). This safe GBP will be used for the preliminary structural design for the underpinning and re-supporting of the existing building at the new formation level at some 8.00 m. below ground level. Once the full site investigation has been carried out the Structural Engineers will be at liberty to re-design the reinforcement and base sizes to reflect any increased capacity. It is not considered at this stage that the underlying sub-soils will be less than assumed.

Ground water, if encountered by the bore hole, will form part of the structural design and method statement for keeping the trench side dry before and during concreting. Sumps will be installed and the water will be pumped out under a controlled system so as not to cause the desiccation of the surrounding CLAY sub-soils either during construction or at completion.

### Drainage, Services and Utilities

The existing drainage system will be maintained during the course of the works and will be extended to encompass the increased volume of the basement. In its final condition the existing and new drainage will be taken below the basement slab level and run at a gradient of 1 : 40 for a 110mm diameter underground pipe to a new combined chamber. A 'Bulldog' pump, back up pump and battery alarm system will be installed to raise the water to the existing drain height to run by gravity in to the existing mains system.

The entire basement will then be lined with a Newton waterproofing system and proprietary base drain and floor membrane to run to a separate chamber where a 'Titon' pump, back up pump and alarm system will be installed. This system will be installed by an approved contractor under an insurance backed guarantee.

The gas, water and electric service connections will not be moved and will be protected during the course of the construction works. On completion the new wiring and CCU together with the internal water and gas pipe work will be re-connected to these service points.

### Impact on Existing Neighbouring Structures

The proposed method of construction will not affect the neighbouring structure as support is to be maintained at all times. The segmental retaining wall cast under the existing party walls are designed as a free standing cantilever and as such does not rely upon any lateral restraint or propping in the temporary or permanent conditions.

The works are subject to a Party Wall Award to be agreed between the two adjoining neighbours under The Party Wall etc Act 1996. A schedule of condition for the Party

Wall and its adjacent walls, ceiling and floors will be recorded before the works commence. This will be used as an aid memoir to establish if any damage has been caused to either of the neighbouring properties, so that it can be established and corrected by the building contractor.

### Basement Design


The Waterproofing and Structural designs will be carried out by a competent and suitably experience Structural Engineer. The design will be will be in accordance with the following documents and approved by Islington Building Control and Islington Transportation and Highways Department.

- BS 8110 - Structural Use of Concrete
- BS 8002 - COP for Earth Retaining Structures
- BS 8102 - Protection of Structures against Water from the Ground.
- General Requirements for the Design and Approval of Structures Supporting the Public Highway.
- BS5628 - Structural Use of Masonry
- BS 5950 - Structural Use of Steelwork in Building

Prior to construction further investigations will be carried out to ensure the exposed ground conditions extend across the site and if any variations are found the design will be modified to take account of this.

The existing and new elements of construction will be fire rated to ½Hr Fire Resistance and the property and its extensions will be designed in accordance with the requirements for Thermal Efficiency, heating and ventilation as is the responsibility of the Architect but also the Structural Engineer as part of the consultancy team.

This Method Statement has been produced by Robert Groves IEng. AMIStructE. of R J Groves Associates Ltd, Consulting Structural Engineers. This statement should be read in conjunction with the structural design drawings, RC Details and Bending Schedules during construction and only as a stand alone document for the purposes of obtaining planning permission.



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