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STRUCTURAL
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Feasibility Statement for Basement Extension at 27a Lambolle Road NW3 4HS.

Description

The property is a Victorian semi-detached house that has been converted into flats. There is a small, paved front garden and a large rear garden. There are mature trees in the front and rear gardens. The garden boundaries are brickwork walls. The house is typical for the period and the area, and the neighbouring properties are similar. Access to the rear garden is by a path alongside the flank wall of the house. This path links the front and the rear gardens.

The house has a basement, ground floor, first floor and a second floor. The ground levels are such that the rear garden is at the basement floor level and the front is at street level. The existing basement does not cover the full area of the house.

Proposed Alterations

It is proposed that the existing basement be extended. At present the basement covers approximately three quarters of the plan area of the house. It is to the full width at the rear and about half the width at the front. The extension will be to the remaining quarter of the house. The rear and side appearance of the house will not be changed. Only the front of the house will be altered by the addition of the basement extension within its wall.

Access to the property will be unchanged. The front entrance, at ground level, will still be from Lambolle Road. The rear access from the garden will be the same as it is now. The side path linking the gardens will remain. The alterations are internal and, apart from new doors into the new basement extension, the existing basement will remain the same as it is now. Existing services in the house, drains, water, gas and electricity, will not be altered. The new part of the basement will be a living room, dressing room and wardrobe. It will have various services extended into it.

The existing buildings, routes and spaces will be maintained. Safety and security of the property will be maintained during and after the building works.

Appearance

Only the internal to the front elevation of the property will be altered. The new basement extension will fill the gap between the existing front basement and the party wall. It will have a bay to match the existing bay window over. The new extension will be roughly 4m by 5m, plus the bay. The floor to ceiling height will be that same as the existing basement. Floors will be level and unchanged.

All the alterations are internal apart from the changes to the front wall of the basement. There are no changes to the landscaping of the front garden. The existing trees will be unaffected by the proposed works.

The construction will have brickwork walls, concrete foundations and basement floor slab, and timber ground floor with steel beams. Lintels may be steel or concrete.

Heritage Assets

The building is not listed nor is it known to be in a conservation area. There is no archaeological significance to the property. All external works will be to the front and will be in keeping with the rest of the house and the neighbourhood. The type of brickwork and mortar, the brick bond, etc. will match the existing construction.

The view of the house from the public road will not be altered.

Construction Procedure

The method of construction of the new part of the basement will be standard underpinning procedures to the party wall and front wall. The two internal walls of the new part of the basement already exist and will not require any change except, perhaps, an increase in the width of the footing.

The party and front walls will be underpinned in nominally one metre long units. Pits will be excavated under the walls and reinforced concrete underpins will be installed. The underpins will support the wall over and act as retaining walls to the basement. No more than one in five pins will be constructed at one time. Pins will not be excavated alongside previous pins that have not been active for less than two days. Each new pin being excavated will be adjacent to a two day old pin. The sequence of underpinning will be shown on the drawings that detail the pins. This procedure will ensure that at least 80% of the walls will be supported at any time during the operation.

The existing internal basement walls are acting as retaining walls and will have the lateral load from the ground removed when the basement is excavated. The existing wall will be able to carry the vertical loads alone when the lateral loads are removed. The vertical loads will increase slightly because the ground floor will now span onto the walls instead of bearing on sleeper walls. This increase will be compensated for by the soil removal. If the increase in load is greater than 10% then the existing walls will require underpinning. The bearing capacity of London clay is about 150kN/m² at one metre depth. The capacity at 3m depth will be about 200kN/m². If the bearing on the soil below the footing is kept less than 100kN/m² then settlement should not occur. See attached calculation pages 01 to 08.

The above procedures should ensure that cracking will not be worse than Category 1 on the Burland Scale. That is cracks will not exceed 1mm wide. Decoration and some repointing may be required.



The removal of soil from the new basement area will relieve pressure on the sub-strata. This will allow the clay to expand and allow heave to occur. The basement base slab is to be in reinforced concrete. It will be attached to the basement walls and be reinforced sufficiently to contain this heave.

Seals Between Existing and New Basement Walls.

The new basement will be of waterproof construction with an internal waterproof membrane. The junction of the new basement to the existing will have a seal. Volclay Waterstop RX is proposed. This is a montmorillonite based clay product that expands in the presence of moisture. If it is contained so that expansion is restricted then it forms a gel that is watertight and seals to the surface that contains it. A watertight seal is formed.

Conclusion

The new basement will be adequately designed and constructed to minimise the effect on the existing structure. Damage will be to Burland Category One or less. The construction will carry the loads applied to it from the building above and the soil around it.

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