ROSS & PARTNERS

Consulting Civil and Structural Engineers

Directors:
M. J. Wakely, BSc, CEng, FICE, MIStructE, FConsE
M. A. O'Regan, BSc, C.Eng, MIStructE

Associate Director:
P. A. Young, BSc, CEng, MIStructE, MICE, FConsE

Consultants:
P. R. Burgess, BSc, CEng, FICE, MIStructE, MCons
W.G. Cantlay, BSc, CEng, FICE, MIStructE, FFB
I. A. C. Wright, P.Eng, F.S.E, M.B.Eng

1 Bastwick Street
Clerkenwell
London EC1V 3NU

Tel No: 020 7553 6050
Fax No: 020 7253 6720
Email: mail@ross-partners.co.uk

Your ref:

Our ref: KZ/11420/P1

To: Gordon Lewis
Project: 106 Albert Street, NW1, London
Job No: 11420
Engineer: Kostas Zapaniotis – Mike Wakely CEng FICE MIStructE
Date: 07/04/2014. revd.D 05-12-14

BASEMENT IMPACT ASSESSMENT.

At your request, Ross and Partners made a site visit to the above on the 20/03/2014 and again recently. The building is similar to a number of our previous projects in the Camden, Westminster and Kensington areas. The existing property is part of a terrace of Grade II listed buildings, located on the east site of Albert Street in London's NW1 area. It is a narrow fronted, three storeys high house over a basement. The existing basement is isolated from the main house above, but has access to the rear garden. Please refer to photo 04.

Proposal.

We understand that as part of the project's works, it is proposed to alter the existing layout of the property's basement and ground floor levels. In summary:

a) The proposed basement level works include a full width rear extension out to the rear garden with a new reinforced concrete slab, retaining walls and underpins to the underside of the adjacent properties' garden walls. This replaces paved and lightwell 'hard' areas. The existing basement level formation level is now proposed to be lowered by only approx. 290mm compared to the original proposed 900mm. This will considerably reduce any effect on the adjoining structure as it minimises the need to underpin the existing basement walls.

The existing LGF Clearance is 2050mm. This is significantly less that the minimum Clearance in the Mayor London Housing Design Guide (item 5.4) of 2500mm but by lowered the FFL by 190mm, (the additional depth of formation is to allow insulation.)

What we would now be proposing, would be excavation of an additional 190mm plus the difference between the existing (estimated at 330mm to include insulation and underfloor heating) and proposed slabs. So if the existing slab was say 230mm, then the drops would be :

- 190mm in the FFL
- 290mm in the underside of slab.

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b) The proposed ground floor level alterations include a much reduced small rear extension with new masonry walls and a roof.

We have been supplied with architectural proposal drawings – which illustrate the extent of proposed alterations – and an arboricultural impact assessment report – reviewing any conflicts between the construction proposals and the trees that are present within the immediate vicinity. The report declares that there will be no significant impact in the current proposals for the main construction.

A full site investigation report, to determine the nature and geotechnical properties of the underlying soils and ground water regime in relation to the basement extension and construction, has been carried out. This included a borehole to 10m depth with stand pipe and trial pits to determine the existing foundations. In addition a detailed environmental study was carried out to determine groundwater, hydrogeology and influencing geotechnical and contamination issues. With reference to photos 01–03, the existing garden has boundaries on both sides. The garden of 108 Albert Street is at approximately the same level as the garden at 106; and the garden of 104 Albert Street is at a significantly lower level.

The much reduced excavation will have minimal effect on existing services running within the area of the proposed extension. With reference to photos 04 and 05 and given that the existing basement slab will be lowered by only 290mm any shallow drainage can be re-routed.

Analysis.

Lowering the existing basement 190mm and its formation only 290mm (additional is for insulation) will now appear to need minimal traditional sequential underpinning. At the rear new basement level, a new reinforced concrete slab with retaining walls and underpins to the underside of the adjacent properties' garden walls will be required to form the new enclosure. Traditional sequential underpinning of adequate strength will support the party and crosswalls both vertically and laterally under earth and supercharge loading. Underpinning of the existing boundary walls will be undertaken sequentially and temporarily propped. A full site investigation confirms that the existing ground conditions are suited to the construction proposals. This will also be required for the Party Wall Surveyor. Both 104 and 108 Albert Street were checked by the party Wall surveyor that they have an existing basement.

If the reinforced concrete walls encroach into the boundary wall then they become 'special foundations' when the neighbour could refuse consent as it could hinder their future development. Setting the reinforced concrete walls inboard avoids this issue and also with temporary propping of the traditional underpinned element allows the reinforced concrete box to be poured monolithically. Once the rc box is complete and at sufficient strengthen then the temporary propping can be removed.

Using Camden's Planning Guidance on Basements and Lightwells we conclude that the Burland category (p13) should be 1 ie very slight.

With regard to their flowcharts (p17, 19 and 21) and with reference to our soil investigation (SI):-

Subterrean (ground water) flow screening chart

Q1a. No effect. The site is separated from any underlying aquifer by a considerable thickness of very impermeable London Clay. Ref SI.
Q1b. No. The Basement will not extend below the water table found at 5.8m depth
Q2. No. The site is not within 100m of a known watercourse. Ref SI
Q3. No. The site is not within 100m of Hampstead Heath ponds.
Q4. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved area and lightwell.
Q5. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved area and lightwell.
Q6. No. The basement is not lower than a local pond.

Slope Stability screening flowchart

Q1. No. The site does not include slopes.
Q2. No. The proposed re-profiling will not involve unrestrained slopes but only normal steps.
Q3. No. The neighbouring sites do not include slopes.
Q4. No. The site is not within a hillside
Q5. Yes. London Clay is the shallowest strata. Ref SI.
Q6. No trees are shown removed on the Architect drawings.
Q7. No visible cracking was noted and existing foundations were found exceeding 1000mm depth that minimises any clay shrinkage effects.
Q8. No. The site is not within 100m of a known watercourse or spring line.
Q9. No. The site is not within previously worked ground. ref. Soil report.
Q10. No. The site is separated from any underlying aquifer by a considerable thickness of impermeable London Clay.
Q11. No. The site is not within 100m of Hampstead Heath ponds
Q12 The main basement is 3m from the highway but only 2.5m deep and separated from the highway by coal store vaults remaining unaltered.
Q13. No. The proposed basement will only be 190mm lower than existing and adjoining property basements.
Q14 No. There are no nearby known tunnels.

Surface water and flooding screening flowchart

Q1. No. The site is not within the catchment area of Hampstead Heath ponds.
Q2. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved and lightwell area not materially affecting surface water flows.
Q3. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved and lightwell area and conservatory regarding ‘hard’ areas.
Q4. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved and lightwell area not affecting surface water profile to neighbouring properties or watercourses

Q5. No. The basement portion is unchanged other than 290mm deeper and the rear lightwell/extension replaces a paved area not materially affecting surface water quality outflows.

Conclusion.
Based on the current design information, it is concluded that the outline proposal to extend the existing basement and ground floor levels to the rear garden of the premises is structurally feasible without impacting the stability of adjoining properties, or drainage, or nearby trees or retained boundary walls. Where there is a found existing tree stump next door to the existing wall, excavation down to 2.6m will be carried out to avoid heave from desiccated soil.

We note that the design and construction of the proposed glass roof should be carried out by a specialist glass designer and contractor. Please note that we have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and are therefore unable to report that any such part of the structure is free from defect.

Yours sincerely,

ROSS & PARTNERS

MIKE WAKELY CEng FICE MIStructE
(+ photos)

Photo 01 –108 Albert Street–Garden level approximately similar to 106 Albert Street garden level.

Photo 02 – Garden wall to 104 Albert Street.

Photo 03 – 104 Albert Street–Garden level lower than 106 Albert Street garden level.

Photo 04 – 106 Albert Street–Rear elevation showing basement and ground floor levels.

Photo 05 – 106 Albert Street–Existing basement level showing drainage.