



## TECHNICAL ADVICE G1615-TA-01-E1

### Eldred Geotechnics

11A Woodside Chelsfield  
Orpington Kent BR6 6JR  
Telephone 01689 869406  
Email mail@eldreds-geo.co.uk

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<b>Project</b>	<b>28 Redington Road NW3 7RB -</b>	<b>Project Ref</b>	<b>G1701</b>
<b>Subject</b>	<b>Planning Application 2016/2997/P - Appeal</b>	<b>Date</b>	<b>30/08/17</b>

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I was previously engaged by the owners of 26 and 30 Redington Road to assess the applicants' Basement Impact Assessment and have now been requested to review and comment upon the additional material which has been submitted by the appellant and appears on the Camden Planning Portal website.

My qualification to offer opinion is that I am a Chartered Civil and Structural Engineer with a higher degree in Geotechnical engineering, Director of Eldred Geotechnics Ltd and a Consultant with more than 40 years' experience of practicing independently in the disciplines of Geotechnical, Environmental, Civil and Structural engineering.

In my review of the initial application I pointed out that despite its tremendous volume of information, the BIA was not fit for purpose: it failed to adequately address any of the three engineering requirements of the then current development policy DP27. In course of their assessment and counselling on behalf of Camden, Campbell Reith also made the applicant aware of the need of better information, but without result. The application failed.

Whilst new engineers, Ross & Partners, have produced some 100 pages of new information, the revised BIA continues to fail the fundamental engineering requirements of both the former policy DP27 and current local plan policies A5 for basements and CC3 for water. It is pertinent to note the detail of the current policies that were adopted on 3rd July this year.

#### Policy A5 Basements

The Council will only permit basement development where it is demonstrated to its satisfaction that the proposal would not cause harm to:

- a. neighbouring properties;
- b. the structural, ground, or water conditions of the area;

The Council will require applicants to demonstrate that proposals for basements:

- n. do not harm neighbouring properties, including requiring the provision of a Basement Impact Assessment which shows that the scheme poses a risk of damage to neighbouring properties no higher than Burland Scale 1 'very slight';
- o. avoid adversely affecting drainage and run-off or causing other damage to the water environment;
- p. avoid cumulative impacts;

#### Policy CCC3 Water & flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible.

We will require development to:

- c. consider the impact of development in areas at risk of flooding (including drainage);

Whereas the wording of policy CCC3 infers a requirement for the best possible outcome, the emphatic tone of policy A5 clearly indicates the view of Camden and agreement of the

examining Planning Inspectorate that its requirements are too important and fundamental for planning consent to be granted before they are satisfied.

The appellant has not demonstrated that the scheme satisfies policy A5(n) with respect to either 26 or 30 Redington Road. No. 26 is the more affected and will be considered first.

Ground below No.26 will be up to approximately 9m above the lowest basement excavation level for the proposed development. Currently, it is about 4m above the existing ground floor (I have used the Architects' floor level nomenclature) and the 4m height of ground is supported by a brick boundary retaining wall, which it itself supported by floors in No.28.

The engineering design and supplementary BIA presented by Ross & Partners assumes that the existing boundary wall is to be retained but that is not the apparent intention of the Architect.

The Architects' proposed ground floor plan JCA-RR-PR-011 has not changed since the original application. It shows quite clearly that the new boundary wall is to be set over towards No.28 by some 300mm relative to the position of the existing wall.

The same drawing also shows that over the 4m width of the lightwell, the boundary wall is to be removed entirely above ground floor level. The proposed ground floor would be still almost 5m below the highest adjacent ground level in No. 26. Without support the earth, and consequently, part of No.26 would be in real danger of collapse.

Architects' 1st & 2nd floor plans, JCA-RR-PR-012 & 013 continue to show the boundary wall removed across the light well, leaving only a half brick facing wall in No. 26 to support the roof and weather the interior of the house.

Architects' and engineers' design proposals conflict and are incompatible.

Referring now to Ross & Partners' enabling and construction scheme presented on their drawings 11728/D/02 to D/15, I have considered the scheme as presented, and quite separately from the conflicting information to which I have referred above.

Drawing D/03 shows the intention to underpin the existing boundary wall which Ross & Partners assume would be retained. The drawing shows the underpinning as being carried out from within No.26. That is completely unacceptable. Apart from requiring excavations more than 4m deep, it would destroy much of the interior of the property and prevent use of the lower ground floor and much other accommodation. Ground movement affecting No.26 would be inevitable and the construction method offers nothing to minimise its effect.

Although it has not been considered, the alternative of underpinning from within No.28 would also introduce a risk of damage to No.26. Excavations would remove the ground floor slab close to the wall, inevitably reduce the lateral support at the foot of the wall it currently provides and have the potential to induce lateral movement at the base of the retaining wall, which would be greater and more difficult to resist than is normal for routine underpinning. That could in turn induce ground movement in No.26.

To allow demolition of the existing building and construction of the new development, the boundary retaining wall would have to be shored from within No.28. The proposed method of doing that without loss of support requires the part of No.28 closest to the boundary wall to be left in place until shoring has been installed. Shores would have to be inserted through walls and floors of the building. That would require parts of the structure to be removed. It is

unclear how that would affect the resistance of the remainder to movement of the retaining wall; the method is still in sketch stage and whilst the 13 drawings might be presented to a high graphic standard they offer little more than generic illustration of method.

There is no apparent provision for the boundary wall to be supported laterally once the permanent works were complete and temporary works removed. The drawings provided show a void between the boundary retaining wall and the permanent concrete perimeter walls with no support between the two. Sections 3 and 4 on Ross & Partners drawing 11728/S/10 refer.

The BIA does not include a ground movement assessment and an assessment of the risk of damage to neighbouring property. Those are fundamental and critically important requirements to which I shall make further reference.

In summary of this part, the design conflict means that if the Architects' scheme prevails, Ross & Partners design and drawings have no relevance to the intended construction. Also, even if the Ross & Partners' scheme takes precedence and the Architects' plans are changed to suit, the engineering proposals still fail to demonstrate compliance with the structural aspects of Camden planning requirements.

The absence of a ground and structural movement and damage risk assessment is also important for No. 30 Redington Road.

There is no provision to protect the stability of either the small outbuilding at the boundary between Nos. 28 and 30 or the remainder of the free standing boundary wall.

There have been no reported investigations of the founding depths of these structures but drawings 11728/D/10 and D/11 assume they are about 1.5m below ground, a depth convenient for the construction which would follow. In combination, drawings D/02, D/11 and 11728/S/01 show that a piled wall and capping beam would be installed close to the boundary. The pile installation would cause ground movement and settlement of the footings and have the potential to damage the walls.

Drawing D/10 shows the need for ground in No.28 to be cut to a 35 degree slope in front of the boundary wall. This might be too steep for the soft clay found by the ground investigation and give rise to slope instability. The intention is for the sloped ground to be backfilled at a later stage of construction (Drawing D/14). The fill would have to be compacted by machine. That would cause the fill to exert more lateral ground pressure on the boundary wall than currently exists. Contrary to drawing D/14, which shows a ground level difference between Nos 28 and 30 of about 0.5m, ground in No.28 at that point is between 1.5m and 3m above that in No.30. The additional pressure might destabilise the wall.

None of these risks have been considered.

The basement of No.30 has a history of groundwater flooding. The BIA SUDS surface water drainage assessment provides for reduction of flow to the public sewer to be effected by holding back 30 cubic metres of water stored temporarily in an underground tank in front of No.28 and higher than No.30. Such tanks allow stored water to infiltrate the ground as well as eventually discharging to the sewer system, the amount of outflow to the ground depending upon its permeability.

The assessment describes the ground infiltration potential as very limited. But ground in the site varies randomly from sand to clay. No investigation has been made of the ground

between the tank and No.30 and the long term potential for the storage system to discharge downhill seepage and increase flood risk at No.30 has not been considered. A further omission is consideration of the fact that whereas water draining through the sand from higher ground to the rear and east of No.28 might reasonably be expected to pass below the existing ground floor, that would be prevented by the greater depth of the proposed basement. There is thus potential for groundwater to be diverted around the basement towards No.30.

The requirements of policies CCC(c) and A5(p) have not been satisfied.

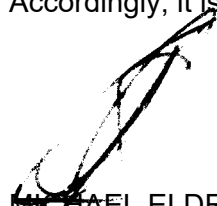
A ground movement and damage risk assessment is promised by the BIA but none is provided. According to the BIA the assessment will eventually be made by a well known consultancy using a 3 dimensional finite element analytical model. Such analyses are complex and do not automatically provide "black box" results. They require skilled interpretation and, most importantly, require relevant and reliably correct input data about the ground and structures that will support it during construction.

In this case, ground in the site varies in both composition and strength with unknown boundaries between materials. As Dr. de Freitas explained in his geological assessment, "**First Steps Report for 28 Redington Road (V2) dated 27 August 2016**", ground conditions are anything but straightforward and include some inherent risk of slope instability.

Having regard for the construction method proposed, the ground information available and the concerns of Dr de Freitas about that which is unknown, I consider it extremely unlikely that a competent ground movement assessment, which takes proper account of the uncertainties involved, would estimate the damage risk to neighbouring property as less than Burland Category 2. That would fail to demonstrate compliance with policy A5.

In final summary, the BIA remains entirely inadequate. There are conflicts between Architects' and engineers' proposals. Quite separately from that, the engineering information fails to satisfy parts of the Camden local plan that it considers and fails to consider other requirements entirely. The required ground movement and damage risk assessment for neighbouring property is also absent and it is doubtful that, when undertaken, it will satisfy Camden's requirements.

Accordingly, it is my clear opinion that the scheme, as it is today, should not receive consent.



MICHAEL ELDRED  
ELDRED GEOTECHNICS