

41 Howitt Road – Basement impact Assessment

David Dexter Associates Ltd ( DDA ) response to Campbell Reith comments regarding DDA basement impact assessment – July 2017

Item	Topic	Chelmer's Comments	Campbell Reith's Comments	DDA Response
1	Damage to neighbouring properties	The damage category has not been calculated in accordance with the Burland system; Separate assessments will be required for adjacent properties as foundations at different levels; CPG4 requires mitigation to be proposed where Category 1 damage or greater is predicted.	Agreed - recommendations below. The damage impact assessment predicts Category 2 damage but does not consider the effects of heave, does not consider separate load bearing walls, and is not considered conservative.	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
2	Land stability assessment	No evidence presented that an appropriately qualified engineer / geologist has assessed the scheme.	Agreed - CGL (Ian Marychurch) specifically limits his comments to the hydrogeology assessment.	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
3	Extent of underpinning to neighbours	Basement under no 43 is partial so requirement to underpin the remainder of the party wall - the risk to no 43 has not been identified.	Agreed - the use of transition underpins is suggested by DDA but not in sufficient detail (see also temporary and permanent works recommendations below).	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
4	Known areas of flooding	Specific reference to SFRA required; the site is within a Critical Drainage Area which should be identified and assessed.	Agreed - additionally, consideration of attenuation SUDS in accordance with CPG4 3.51 should be made.	Area of known flooding- Site is clearly shown in Flood Risk Zone 1 in the SFRA, and is on the periphery (near the watershed) of a wide area designated as 'Critical Drainage Area' where some sewers are known generally, but not specifically, to not be able to drain intense storms. There is no evidence that this area of Howitt Road has been historically affected. No increase in impermeable area therefore no SUDS requirement envisaged
5	Groundwater	Resolved		
6	Groundwater (drainage from rear patio)	Rear patio drainage may discharge to public sewer and impact should be assessed	See 4 - attenuation SUDS should be considered	See DDA response to Item 4 above.
7	Arboricultural impact assessment	Potential for shrink / swell movements to be generated by tree action	Agreed - soils tested in the SI indicate signs of desiccation and the structure shows sign of historic movements. Risk / impacts should be evaluated (see below)	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
8	Services survey	Identification of underground infrastructure is required in the land stability screening	Agreed - underground infrastructure should be identified and impacts assessed if within zone of influence	No services believed to be within zone of influence -to be confirmed prior to commencement of any works.

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9	Borehole / trial pit	Resolved		
10	Clay cohesion value	Resolved		
11	Risks of groundworks	Resolved	The temporary and permanent works are not presented in sufficient detail to be able to assess if all impacts have been suitably mitigated.	See David Dexter Associates drawing 1343 / CS01-P1, CS02-P1 & CS03-P1
11	Monitoring	Resolved	The structural monitoring proposed will need to be updated to specifically address the scheme's predicted movements, and include suitable trigger values and contingency actions.	See comments in Ground movement assessment undertaken by Card Geotechnics, Revision 1
12	Retaining wall design	Resolved		
13	Drawings	Resolved	Should be updated once temporary and permanent works, transition underpinning etc have been clarified	See David Dexter Associates drawing 1343 / CS01-P1, CS02-P1 & CS03-P1
14	Previous damage	Resolved	DDA dismiss the previous damage as historic, but this has not been demonstrated considering the potential for desiccated clays and arboricultural effects (see 7)	See David Dexter Associates report dated June 2017 and See Ground movement assessment undertaken by Card Geotechnics, Revision
15	LBC's development policies	Resolved		
16	Construction Measures	Resolved		

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DDA response to Campbell Reith Conclusions / Recommendations

Campbell Reith Conclusion / Recommendation	DDA Response
Temporary and permanent works to be consistently presented, including proposed sequencing, propping, transitional underpinning etc.	See DDA drawings CS01-P1, CS02-P2, CS03-P3
Effects of shrink / swell, removal of the existing trees and consideration of the exiting building damage to be assessed.	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
GMA and damage impact assessment to consider the temporary works and the effects of heave, and should be calculated in accordance with the	See DDA drawings CS01-P1, CS02-P2, CS03-P3 & See Ground movement assessment undertaken by Card Geotechnics, Revision 1
Mitigation should be proposed where Category 1 or greater damage is predicted. All structures including the highway and utilities to be identified and assessed.	See Ground movement assessment undertaken by Card Geotechnics, Revision 1
Appropriate structural monitoring including trigger values and contingency actions should be proposed.	See comments in Ground movement assessment undertaken by Card Geotechnics, Revision 1
Appropriate drainage in accordance with CPG4 3.51 to be proposed.	
All assessments to have been demonstrably reviewed and approved by appropriately qualified individuals in accordance with CPG4.	Card geotechnics have reviewed and approved the BIA, this has been done by a qualified chartered geotechnical Engineer whilst undertaking the Ground movement assessment.

Notes / Observations - *DDA Response in blue*

1. The BIA has been prepared by DDA with an audit undertaken by Chelmer. The scheme involves an extension of an existing 1-storey basement, to include the full footprint of the building plus a rear extension.
2. The site is part of a terrace of houses. There is an existing basement at 43 Howitt Road. There is no basement at 39.
3. The underlying ground conditions are Made Ground over London Clay. The SI describes roots to 3m and the testing would suggest the clay is desiccated. There are trees at the rear garden boundary.
4. In the description of the existing property, damage is described including cracking and bowing of walls. This damage is not further assessed, but rather is dismissed as historic. There is no consideration of potential movements due to shrink swell of the clay. *DDA undertaken a further visual inspection circa 2 years after the initial inspection and none of damage evident appears to have got worse.*
5. Temporary works involves underpinning and temporary propping, The BIA and CMA are not consistent in their descriptions, although it is accepted the BIA has been updated more recently in response to Chelmer comments. The level of detail of sequence and propping we normally ask for has not been presented. *A envisaged sequence of works and temporary propping is shown on DDA drawings CS01-P1, CS02-P1 & CS03-P1*

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6. The GMA has allowed for the retaining walls to be unpropped cantilevers in the permanent case. However, it has neglected potential heave effects. ***SEE CARD GEOTECHNICS GROUND ASSESSMENT REPORT***
7. The GMA predicts Category 2 damage and makes no recommendations for further mitigation, as required by CPG4, Section 3.27. The GMA has not considered individual load bearing walls, and therefore only provides an estimate of general movements. rather than being able to predict damage to particular walls. Without the inclusion of heave effects, the GMA is not considered to account for all potential movements. ***SEE CARD GEOTECHNICS GROUND ASSESSMENT REPORT – ONLY CAT 1 DAMAGE ENVISAGED.***
8. It is mentioned that transition underpinning may be required to stabilise neighbouring property (no 39). This is not detailed and the BIA states this would be decided under the Party Wall Act. ***SEE CARD GEOTECHNICS GROUND ASSESSMENT REPORT – TRANSITIONAL UNDERPINNING NOT CONSIDERED NECESSARY***
9. Likewise, a suitable monitoring plan has not been proposed and has been assumed to be agreed under the Party Wall Act (target positions are mentioned, but should be presented with trigger values and contingency actions). ***SEE CARD GEOTECHNICS GROUND ASSESSMENT REPORT FOR COMMENTARY IN THIS RESPECT***
10. No impact assessment on the highway / pavement has been undertaken. ***THE PROPOSED METHOD AND SEQUENCE OF WORKS & TEMPORARY PROPPING SHOW A SCHEME THAT WILL NOT UNDUELY UNDERMINE THE EXISTING FOOTPATH.***
11. Attenuation SUDS has not been considered. The site is within a Critical Drainage Area, ***SEE PREVIOUS COMMENTS ABOVE IN THIS REPECT***
12. It has not been demonstrated that all sections have been reviewed by appropriately qualified individuals. ***SEE PREVIOUS COMMENTS ABOVE IN THIS REPECT***
13. The BIA recommends the following, which would normally be undertaken as part of the BIA:
  - Identification of underground utility infrastructure and tunnels that may be affected. ***THE DWELLING IS OVER 100 YEARS OLD AND IS A PRIVATE PROPERTY NO PUBLIC DRAINAGE OR ANY EASEMENTS FOR SUCH ARE SHOWN ON THE PROPERTY DEEDS. THE PROPERTY IS NOT ABOVE ANY LONDON UNDERGROUND TUNNELS. A FULL INFRASTRUCTURE SURVEY WILL BE UNDERTAKEN PRIOR TO THE WORKS.***

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- Impact of tree removal to be assessed.
- Heave assessment, and appropriate temporary and permanent works to be designed to mitigate effects.

***SEE PREVIOUS COMMENTS ABOVE IN THIS REPECT – SEE CARD GEOTECHNICS GROUND MOVEMENT ASSESSMENT AND COMMENTARY THEREIN.***