

Mr & Mrs Bennett
18a Belsize Park Gardens
Belsize Park
London
NW3 4LH

10 November 2014

JAK/14:0712/5099

Dear Mr & Mrs Bennett

RE: REPORTED CRACKING TO 18 BELSIZE PARK GARDENS

Thank you for sending over the report and correspondence that you have been given relating to the previous investigations that were undertaken regarding structural damage that had occurred to the property. All were written by Harrison Consulting, two sent to the management company looking after the property and one to the Loss Adjustors, VRS Vericlam UK Ltd, acting on behalf of the insurance company.

An investigation was carried out in September & October 2010 that I anticipate was a visual inspection of the cracking and damage that had been reported by the Management Company. This report was not included in the information you sent over so I don't know exactly the extent of the cracking that had been reported, but was referenced in the report dated 6 April 2011 you did send over. The document I do have is a follow on report covering the intrusive investigations that were carried out on the property by way of excavating trial pits to find out information about the foundations of the property and the ground conditions beneath them, as well as a CCTV survey of the drainage.

The investigation identified what I would expect for the area in that the house has concrete foundations bearing onto London Clay. The London Clay is a material that is susceptible to volume changes when the amount of water within it changes, in this instance the trees had extracted water from the soil causing it to shrink and the foundations to drop. Tree roots were found to a considerable depth below the foundations along with reported desiccated soil. A quick check of the NHBC tree influence tables shows that the extent of desiccation reported is greater than would be allowed for when constructing new foundations. This is not unexpected in this environment where the ground is predominantly covered by impermeable surfaces and buildings restricting the amount of water that can get into the ground.

The conclusion of the report was that the property had been affected by subsidence and gave two options for correcting the situation, one to remove the trees and the other to underpin the foundations so that they were below the influence of the trees. In the summary it did also advise that underpinning would assist if the tree removal option was followed to safeguard the property from reverse damage due to the ground swelling again when water returned.





The letter to the Loss Adjustor on the 12 September 2012 confirmed that one of the trees outside No. 20 was removed but clearly not the one outside your property, which the Council refused to do. The letter also included the results from the monitoring of the building fabric that had been undertaken for the past year to see whether the property was still moving. Advice was given that along with removing one of the trees the other should have reductions carried out following which if movements to the building remained minor then repairs could be carried out to the building.

The letter to the management company dated 24 May 2013 summarized 3 options for dealing with the movement problems although it did open with 'the Loss Adjustor....is currently waiting for me to confirm that the dwelling has stabilised in order that modest structural repairs can be conducted'. Option 1 was to carry out the underpinning recommended back in 2011, option 2 was to have the second tree removed and hope that the recovery of the ground is minimal, whilst option 3 was to leave everything as it was except for doing structural repairs that were evident at the time. I don't know what the final outcome was from these options other than it was not option 2 as the tree is still there. Based upon the condition of the external elevation I would anticipate that only some localised repairs were completed as the monitoring studs are still in place and no underpinning.

The cracking that I saw when I visited was of a minor nature and not immediately indicative of any on-going foundation movement, but as it is only the first opportunity to view the building I cannot say for certain. With building movement, as happened with the review by Harrison Consulting, it needs to be conducted over a reasonable period of time, typically 6 months to a year to get a better idea of what might be happening. Ideally a copy of the original report from October 2010 would be useful as I could see what cracking was originally there and see if there is any correlation to the current ones. The repairs that have been carried out seem to be localised only and predominantly decorative rather than structural, and as such the 'weak areas' from the previous cracking still exist and will open up again. I would be happy to review any other information you may be able to obtain to try and shed more light of what is occurring, but in the first instance I would advise that the cracks that have appeared should be sealed with a flexible silicone based sealant to prevent water ingress into the fabric. Longer term repairs to these cracks will need to be dealt with in a more robust manner once we can be more confident that the cause of problems can be determined.

With regard to all the recommendations that were made the only advice that I would agree with would be the need to underpin the existing foundations so that they extend down below the influence of the tree. This should be done regardless of whether trees are removed or not, as the ground has been affected and damage has been done to the property. The option to remove the tree and wait a while for the ground to recover is not advisable as it can take many years for the soil to recover, particularly in this location where water cannot get into the ground very easily as most of it is built over. I also would not recommend the approach of routinely trimming the tree back in order to maintain a 'stable' soil condition. There is no guarantee that trimming back will occur regularly nor that it won't conflict with abnormalities in rainfall that can occur and have occurred more regularly in the last few years. As long as the house foundations are sat on ground that can be influenced by other factors there will always be a risk of movement and cracking that would result. On the basis that the building has suffered damage previously from movement, these areas in particular will be susceptible to cracks appearing.

The more difficult matter to deal with is the external areas in front of the building as this is only an aesthetic matter not a structural one as noted in the previous report by Harrison Consulting. A lot of the damage to the surface at

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the moment I think is down to water ingress and frost action, especially on the flat area leading up to the main steps, rather than ground movement problems. That said there are areas that movement has been the start of the problem allowing water in.

Removing the tree will not immediately improve the behaviour of the ground as it will need time to recover and that timescale is unknown. In addition there are other trees and large plants around that may extend their influence when there is nothing else to compete with and you end up with a similar problem. Likewise leaving the tree there will forever have movement issues associated with external finishes due to seasonal and long term effects, unless these finishes are either put on very expensive piled foundations and reinforced slabs, or flexible finishes are used. Looking around the frontages up and down the street movement problems occur everywhere and have resulted in a multitude of solutions to this problem and degrees of distortion occurring.

The optimum solution would be to allow for movement in whatever pavement finishes that you want with flexible joints suitably positioned. This will restrict your options a little as joints ideally will need to be formed along straight lines and the presence of the tree roots may limit what you are physically able to do in places. The area where most flexibility will be needed is around the tree in the area between the steps down to the garden flat and the flat area between the public footpath and the steps up to the front door. As an idea this area could have decorative gravel applied with a stepping stone type path that can be allowed to undulate without causing trip hazards. Whatever solution is arrived at I would still advise that some form of routine maintenance will be required.

I trust that the above gives more insight and understanding as to what has occurred in the recent past with the property, albeit there are still some key bits of information to identify such as what the final solution was to the problems that were identified. I would be happy to review any other information that you might be able to find or even do a little more fact finding by contacting Harrison Consulting and the Loss Adjustor if you would like me to. I may need authorisation from you for them to release information to me, but I can start with a phone call first and find out if you would like. There will I'm sure be a few questions you'll have so please do give me call if you need to or drop me an email if pondering late at night. [REDACTED]

Yours sincerely

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**J A Kerton BEng CEng MICE
For MJA CONSULTING**

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