

Mrs S Husain,
1 Frognal,
London,
NW3 6AL

Date: 07 April 2015

Your ref:

My ref 15/001

FAO

By e mail

Dear Mrs Husain,

Trees and damage at the front of the property

1. Further to your recent instructions I called and inspected the trees and the front of the property on 12 March and I hope this report is helpful. You asked me to advise as you are concerned about the effects the trees are having on the front of the property, particularly that they might be making the walls unstable.
2. The case is discussed below and the attached site plan shows the trees relative to the building and other main features.

Background

The site

3. Number 1 Frognal dates from about 1900 and is the left hand house of a semi detached pair, having three main storeys and a lower ground floor. Access to the lower ground floor is via steps down into a light well running across the front, which is about 2.7m deep and bridged by steps up to the main front door. The house has been divided in to four flats and is evidently maintained to a high standard. There are no reports or signs of significant cracking or possible foundation related problems there.
 4. The right hand side of the house is joined to no.2, which is similar, and to the left is a passage leading to no.1a, which is set back farther from the road. The main part of the front garden is paved, with stone slabs with some planting beds. Ground level in the passage to the left is about 250mm lower and the boundary on that side is a brick wall topped with low ornamental railings. The front boundary to the left of the gate is a low wall topped by railings while to the right it is just railings, which appear to be recent.
 5. The house is in the Redington / Frognal Conservation area.
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Damage

6. There is severe damage to the walls round the front garden and the paving in it. The main areas are shown on the site plan and are:
- Lifting of the paving slabs in the front right hand part of the gardens.
 - The pier at the front left hand corner of the garden leans out towards the pavement by about 15mm in 300mm (i.e. 1 in 20) and there are large cracks at the junction with the front and side walls.
 - The left hand side wall has a long horizontal crack just above ground where it has been displaced out towards the side passage, it bulges and leans out by about 10mm in 300mm (1 in 30). The lean creates a gap between the rear end of the wall and the front corner of the house; this has been filled recently but there are signs on ongoing movement.
 - There are also several vertical cracks, the most severe is next to the beech tree and has been repaired and repointed in the past before breaking out again. The outward lean is most severe at this point.

Geology

7. The 1:50,000 scale online British Geological Survey (BGS) shows that the local subsoil is London clay. This has a high potential for shrinkage and swelling with changes in moisture content, which can give rise to subsidence in buildings near trees.

Trees

8. There are three trees in the front garden, a beech and two limes, which are shown on the site plan. The beech, tree 3, is covered by a tree preservation order (TPO) made some time before 1998. Following an enquiry about the trees Camden another TPO in 2012, their reference TPO C1023. The copy I have has no record of being confirmed, which should have been done within six months of it being made. It protects two trees, listed as a lime as T1 and a beech as T2, but the plan is inaccurate, as T1 is shown between the beech and smaller lime on the corner, my tree 2, while T2 is shown on the front boundary near the lime, my tree 1. From that it appears that the beech is now protected by two different TPOs, while only one lime is protected. It is impossible to tell which lime, although my tree 1 is by far the better of the two. Where there is a discrepancy between the TPO schedule and map the map prevails, but the order is too inaccurate for that to shed any more light on the matter.

1) Lime

9. Mature tree growing to the right of the front gate, about 9.5m from the front of the house. It is about 25m high with a single vertical trunk about 730mm in diameter that divides at about 2.5m into three main stems suggesting that it was pollarded early in its life. Its age is not known, but its size suggests that it was planted shortly after the house was built, as pollarded limes were popular garden trees at that time. It has been left to grow on and there are no signs of any major recent reduction since then, although Camden Council's online records that that in September 1998 they did not object to it being reduced, their reference TC9806709. However none of the application documents are available, so the exact specification is unknown.

10. There is some minor dead wood scattered through the crown, but that is normal in mature trees and the twig growth is dense and healthy looking. The junction between the main limbs is sound and there are no signs of decay or other structural defects.

2) Lime

11. Mature tree, about 9.5m from the house, 12m high with a single trunk 330mm in diameter, growing in the front left hand corner of the garden. It also appears to have been pollarded when younger, but it has also been left to grow on. Possibly similar in age to the other two, but has been shaded and suppressed by them, so it has developed a pronounced lean over the road but is reasonably sound apart from that.
12. There are no signs of major reduction, but it was also the subject of the conservation area notice made in 1998 to reduce the crown. It is possible that the limes were not reduced, they might have been thinned, which would be much less obvious after this length of time.

3) Beech

13. This is growing just inside the left hand side boundary wall about 5.5m from the house and is 14m high with a single trunk 430mm in diameter. It also appears to have been pollarded at about 3m when younger, although beeches tolerate that far less well than limes. The two largest limbs growing from the pollard point have twined round each other but that is not causing any obvious problems.
14. It must have been made the subject of a TPO some time ago because at the same time that the conservation area notice was served relating to the limes a TPO application was made to reduce this tree, Camden's reference TP980710. They permitted that. Again no documents are available to show exactly what the specification was but it is possible to see where the main upper and lateral branches were shortened. It was a moderate reduction that did not make large pruning cuts and the new growth since then is dense and healthy.

Discussion

Cause of the damage

15. The local subsoil is London clay which creates a potential for subsidence, which is an indirect form of damage that occurs if tree roots cause soil shrinkage beneath building foundations. It can affect substantial buildings, but in this case the lower ground floor means that the house effectively has far deeper foundations than many others and the light well across the front will inhibit root growth towards it, although it will not necessarily be a complete barrier. This accounts for the absence of any signs of foundation damage in the house and reduces any risk of it.
16. Although tree roots extend through the soil with little direct force the expansion of the larger roots and lower trunks of growing trees can be sufficient to damage lightweight structures. It is common for them to lift paving and push walls laterally, particularly where ground level differences mean that there is no lateral restraint on the far side. This is clearly the cause of the various problems in the front garden, with the main causes of the severe damage to the front and left being the smaller lime and the beech, trees 2 and 3.

Remedial options

17. The front right hand part of the garden appears to have been re-landscaped fairly recently and the problems there are generally less severe than at the left. The uneven paving can be remedied by adjusting or relaying the slabs and where necessary and the railings on the front boundary are much less likely to be affected by the tree than a brick wall.
18. The front and left hand side of the garden are far more severely affected and the side wall and pier at the front left are starting to look unstable. Detailed consideration of the remedies is a matter for a building specialist, but it appears that the only practical remedy is to demolish both walls and the piers and to replace them. The side wall has cracked above ground and it might be possible to reuse the existing foundation, which would reduce ground disturbance, but that would need to be determined once the walls were down.
19. Depending on the work needed it might be possible to work round the beech and smaller lime trees with suitable protective measures. The trees still have some growth potential and railings would be less susceptible to any further growth, although the difference in ground levels between the garden and the passage to the side would need to be allowed for.

Tree work

20. Most of the building work could be done around the trees, but some work would be appropriate in order to reduce the risk of problems in future.

1) Lime

21. There are fewer structural problems near this tree and it appears that any former ones have been largely addressed. It is also a particularly prominent, natural looking specimen and, although limes tolerate pruning better than many other species, major crown reduction at this stage in its life would disfigure it and create a need for regular recutting that would not otherwise exist. A more moderate approach would be to lift the crown by removing the small lower growth up to the first main branches and by thinning the upper crown by 15 - 20% to reduce its density. That would slow root growth to some degree and reduce the quantity of honeydew, the sticky liquid produced by limes during the summer.

2) Lime

22. This is the main cause of the problems at the front left and is growing in the corner, so repairs would involve working round two sides. It has been suppressed all its life so is a poor specimen with a heavy lean over the road that makes little contribution to local amenity, individually or as part of the group. Although it might be possible to work round it a better long term option would be to remove it and replace it with a species better able to tolerate the shade from the larger trees. Holly would be well suited, as it would also provide some screening and reduce noise. Other possibilities would be hornbeam or field maple.

3) Beech

23. This is not being suppressed like the smaller lime, so is capable of growing much larger, leading to a recurrence of the current problems. It has been reduced and had main limbs shortened in the past and, while it is less tolerant of pruning than the limes, reducing it back to the former reduction points will slow its growth without harming or disfiguring it unduly. New growth might need recutting periodically, but not as frequently as with a lime.

Tree work

24. Any treework should be carried out in accordance with BS 3998: 2010, Recommendations for Treework, and any other relevant standards. It is essential that the contractor doing the work has appropriate third party and public liability insurance. The Arboricultural Association has a list of approved contractors, published on their web site at www.trees.org.uk.
25. The beech is protected by at least one TPO, possibly two if the 2012 one has been confirmed. The position with the limes is unclear, although it appears that one is protected if the order has been confirmed. The trees are also protected by being in the conservation area and the procedure for serving a six week conservation area notice and making a TPO application are the same, but it is important to determine which of the limes is protected, as the council's decision making process is different for conservation area notices and TPO applications.
26. I hope this is helpful but if you have any queries or wish to discuss the matter further please do not hesitate to contact me.

Yours sincerely,



Simon Pryce

Detailed specification for work

1) Lime

Lift the crown by removing lower growth from the trunk up to the first main branches. Thin the crown by 15 - 20% and remove any major dead wood.

2) Lime

Fell and remove stump. Replace with holly, field maple or suitable shade tolerant alternative.

3) Beech

Reduce upper crown and previously reduced lower limbs back to the former reduction points, retaining small shoots as far as possible.

All work is to comply with BS3998:2010, Recommendations for Treework.

Photograph



View along the side wall showing horizontal and vertical cracking and the corner pier detaching and leaning towards the pavement. Trunk of the beech is behind the wall about half way along and the smaller lime is behind the pier and metal post.