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ADVICE

To James Gillions, Head Gardner, Bedford estates
Date 19.09.14
Instruction Bedford Estates (London)
FLAC Instruction ref CC33-1004
Client Bedford Estates
Subject Site visit of 16.09.14 – observations & recommendations

I write further to instructions received originally last year, and to my site visit of 16th inst., to set out my further observations on trees under your custody, and resulting advice. The nature of my findings is such that this text comprises preliminary advice. Accordingly, I shall dispense with peripheral information, concentrating instead on the meat of the matter.

Plane tree to rear of 37-41 Gower Street

1. This mature example of London plane has a stem diameter exceeding 1m and rises to an estimated height exceeding 25m (there was no view of the top to enable accurate measurement). It stands less than 2m from the adjacent, offsite multi-occupancy residence to the southwest, over which it towers formidably. This building, which you advised me is of 1970s construction, appears from casual inspection to be constructed on a partial concrete raft. Perhaps this was specified to reduce incidence of root damage during construction
2. This tree comprises the principal driver for my latest instruction, insofar as you have observed the presence of extinct fungal fruitbodies at its base, as well as anomalous stem morphology potentially indicative of internal structural distress
3. I undertook the industry standard visual and basic acoustic inspection of the lower stem and primary buttress roots. In addition, I dissected one of the fungal structures, based on which I can rule out a number of the usual suspects, but alas cannot confirm identification (due to the condition of the fruitbody)



4. My observations are as follows:
 - i) Acoustic sounding with a nylon mallet did not identify any significant decay associated with the eruptive locations of the fungal structures. However, with this tree species, this is not necessarily determinative of structural soundness
 - ii) Equally, the anomalous form of the lower stem is similar to that exhibited by many London planes, without these – thus far – suffering structural failure. It is, nevertheless, anomalous
 - iii) One conclusion I can offer is that acoustic sounding of the northeast root buttress produced adjacent ground vibrations which, in my experience, strongly indicates root decay
5. In light of these observations, I recommend that consideration is given to procuring further investigation, in this case by use of sonic tomography. My associated recommendation is that Bedford Estates approach a specialist in this field, John Harraway; his website is: <http://www.hts.gb.com/>
6. The tomography should concentrate on the stem of the tree from as close to ground level as possible up to just above the pronounced stem bulge at ca. 1.7m above ground level. Whilst John would, no doubt, provide an interpretation of the results of the tomographic testing, it would be suitable for me also to look them over and provide comments
7. Notwithstanding this, there is, in fact, an alternative, being to follow a chain of reasoning which I set out as follows:
 - i) The tree came through the last locally severe winds without suffering major structural failure; I categorize this as 100% storm resilience **for that storm**. You advised me that the last significantly severe storm occurred in October 2013
 - ii) It is unlikely that the processes of decay could have advanced significantly since then: decay, especially in plane trees, is a slow process when contemplated in human timescales. It is also unlikely that the tree has grown significantly in the intervening growing season (i.e. that of this year): as a mature example, it will not expand its crown size very much year on year
 - iii) Accordingly, it is reasonable to suppose that, if the October 2013 event recurred now, the tree would be immaterially less likely to survive
 - iv) Physiologically, it appears healthy and, therefore, able to tolerate pruning
 - v) Crown reduction pruning, particularly applied as a substantial height reduction, would significantly reduce the tree's 'sail area' with the inevitable effect of increasing its stability against progression of the decay
 - vi) Thus, the tree nicely falls within my usual mantra for the management of decayed trees: *if it's healthy prune it, if it isn't fell it*
8. Naturally, the question as to whether to undertake further investigation (here sonic tomography) is a matter for the client in any particular case, but the chances are that the findings will commend crown reduction pruning as the best way forward

9. Muddying these waters a little further is one other point to consider: the anomalous bulgy growths often put on by plane trees are not much studied. This tree represents a plausible opportunity to tomograph one, which might be helpful to you in managing other members of this species going forward

Adjacent plane trees

10. Whilst on site, I noticed that the similar plane tree standing in the rear garden of number 35 was a close companion to the tree discussed above. Its fate is, therefore, inevitably linked to the other, and it will need managing in like fashion so as to avoid becoming exposed due to loss of aerodynamic load-sharing
11. However, this tree is also host to a basal decay fungus, the fruitbodies of which were also too decayed to allow identification. Precisely the same considerations apply to the assessment and management of this tree as they do for the tree at 37-41
12. A third large plane stands two gardens further up the street, to rear of (I assume) number 45. I did not inspect this tree but noted that it also stands very close to the adjacent building. In my view, it is plausible that root damage from the construction of this building underlies the presence of disease in the first two trees, and it therefore seems at least possible that the third tree is similarly compromised. For this reason, should you find it appears to have any issues, then you should manage it in like manner to the others (i.e. subject it to lower stem tomography and/ or crown reduction)

Trees in Bedford Square

13. Whilst in the locality, you asked me to look at a plane tree in Bedford Square which you identify as number 10. This tree was pruned subsequent to my previous advice, from which it appears to be recovering satisfactorily. You have now drawn my attention to three fungal fruitbodies in the upper crown, which I can identify (90%) as *Inonotus hispidus* (aka *hairy polypore*)
14. The literature indicates that this fungus has a weak ability to degrade the heavily lignified wood of plane trees and accordingly its presence is not usually a cause for concern. In this case, however, I noted that two of the regions of decay seemed significant: one is located at (and causative of) a substantial canker, which indicates active pathogenicity by the fungus; the second is located on the upper surface of a lateral branch, where the decay could potentially erode the critical tension-wood found in this region of plane tree limbs
15. Whilst I consider that the tree in its recently pruned form is not at risk of structural failure, the presence and nature of the decay as observed strongly indicates that regular (quinquennial or so) repeat pruning treatments are required in order to prevent the tree from regaining a full crown (at which point the structural integrity of the diseased members would become in doubt)

16. On my way back out of the garden, I passed by trees 1 and 6. Tree number one has a very large limb extending in the direction of number 47 Bedford Square. This limb reaches out of the garden and over areas of public access. I noted the tell-tale signs of tension-wood inadequacy relative to the mass of the branch, and accordingly it should have end-weight removed to reduce the risk of breakage. A reduction of around 20-25% foliated volume or about 4-5m in length would be suitable

17. Tree number 6, which stands in the island bed by the north gate, also has a very large limb that extends out of the garden and over public areas. Whilst plane trees can often bear such members without difficulty, in this case an upper surface wound is present at a kink in the branch. This forms what engineers term a “notch stress”, i.e. a focal point for local concentration of load stress. Notch stresses on the upper surface of branches are often associated with the initiation of crack formation and can result in catastrophic failure. As such, I recommend that this branch is subject to end weight removal, as described above for tree 1

This completes my preliminary advice on those matters which I am asked to address.

Julian Forbes-Laird

Director