Simon Pryce Arboriculture

Report

Client:	**Mr J Paleomylites**
Site:	**40 Frognal Lane, London, NW3 6PP**
Subject:	**Trees and proposed basement in the rear garden**
Inspection date:	**28 June 2017**
Report date:	**1 July 2017**
Reference:	**17/033**
Author:	**Simon Pryce, BSc, FArborA, RCArborA, CBiol, MICFor**

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1 Introduction

1.1 This report has been prepared on the instructions of TGN Architects, who are acting for Mr J Paleomylites in respect of a proposal to construct a basement in the rear garden of no.40 Frognal Lane, London, NW3 6PP.

1.2 I have been asked to inspect trees growing on and near the site and to prepare a report, impact assessment and tree protection plan, as set out in British Standard 5837: 2012, Trees in relation to design, demolition and construction.

1.3 This report supersedes my previous one, reference 08/038, prepared in 2008 for the then owner of nos. 38 and 40.

Survey method

1.4 The site was visited and the trees inspected on the afternoon of 28 June 2017. The inspections were visual and made from ground level, within the garden of no.40, although on the previous survey in 2008 I had inspected them from the garden of no.38.

1.5 The trees were measured, their maturity, health and structural condition assessed and each was assigned to one of the four retention categories [A,B,C,U] specified by BS5837. The individual descriptions and other relevant information are contained in the attached schedule and they are shown on the attached plans, based on originals prepared by TGN Architects.

2 Background

The site

2.1 Number 40 is on the south side of Frognal Lane and is a large detached house with a separate garage next to the road. The main part of the garden is to the west of the house and is about 20m wide, mainly level, stepping down at the far end to the boundary with no.38.

2.2 Camden Council's web site shows that garden is in the Redington Frognal Conservation Area.

Proposal

2.3 This is shown on the drawings produced by TGN Architects and is to construct a swimming pool in a basement about 8.5m wide by 22m long under the part of the rear garden near the back of the house. Access is to be via a staircase from within the house and the garden above the basement is to be relandscaped after completion of the work.

3 Trees

3.1 This is a prominent feature at the end of the lawn, but not readily visible from anywhere outside the garden. It is a mature tree that has had been partly uprooted in high winds about two years before the 2008 inspection. At the time it had some healthy low growth, suggesting recovery but its condition has deteriorated further since then and its useful life is limited.

3.2 The pink chestnut and Norway maple are just beyond the rear fence in the garden of no.38. Both have been reduced to about 7m when younger, but grown on to develop natural looking crowns. The chestnut has a thicker trunk, but the maple has a larger crown, is more vigorous and becoming dominant, although the chestnut is not being unduly suppressed. Both are in good health, with no signs of decay or major structural defects. They form a screen at the far end of the garden and the tops will be visible the adjacent gardens and parts of the road in front.

4 Discussion

General comments

4.1 The two main functions of tree roots are 1) physical support and 2) the supply of water and nutrients from the soil. Roots will grow wherever conditions are favourable i.e. there is a suitable supply of air and water, so most tend to be in about the upper 600mm of the soil and even shallow excavation or minor level changes can be harmful. Construction near trees can also be harmful in less direct ways, such as soil compaction caused by heavy machinery and spillage of toxic materials such as diesel oil and cement.

Root protection areas

4.2 British Standard 5837: 2012, Tree in relation to design, demolition and construction – Recommendations, specifies measures to avoid or minimise construction damage to trees. One of these is that root protection areas (RPAs) are established round retained trees and that no ground work takes place within them unless suitable alternative measures are taken, such as installing protection on soft ground. RPAs are normally fenced to exclude construction access.

4.3 The starting point is that a single trunked tree's RPA has an area equivalent to a circle with a radius 12 times the trunk diameter measured at 1.5m above ground. With multiple trunked trees the RPA is based on the diameter of a single trunk of the same cross sectional area. Where existing site conditions or other factors indicate that root spread is asymmetrical, the RPA shape can be adjusted to a polygon of the same area, provided this reflects a sound assessment of likely root distribution.

Implications for this case

Direct effects

4.4 Most of the trees here have uniform rooting conditions, so the circular RPAs shown on the site plans will be a reasonably accurate reflection of the actual root spread.

4.5 Part of the RPA of tree 1, the magnolia is within the basement outline, but the proportion is small at about 1.1m^2 out of 39m^2 or about 2.8%. The tree has good rooting conditions in other directions, so that is barely significant and, as it is in decline due to old root damage, the work is unlikely to make any appreciable difference to its condition. As has a limited life expectancy whether or not the proposal goes ahead, it is not a constraint.

4.6 The most significant trees are trees 2 and 3, the chestnut and maple, but their RPAs are well outside the outline of the basement, so they are not vulnerable to direct damage resulting from the work.

4.7 With tree 4 the proportion of the circle under the footprint is even smaller than with the magnolia, at about 0.2m^2 or 1.5% of the RPA. That is insignificant and the retaining wall and level change between the basement and tree means that there are unlikely to be any roots in that area.

Indirect effects

4.8 Some work space will be needed around the basement outline, but the RPAs of trees 2 and 3 are sufficiently far from it that it will not be necessary to take any additional measures to safeguard them. Parts of the RPAs of trees 1 and 4 are within work areas, so ground protection will be needed for working on the soft ground in order to prevent incidental damage from soil compaction or contamination. The crown of tree 4 overhangs the basement, so might need some pruning to prevent it impeding machinery and possibly being damaged, but the tree is healthy and can be allowed to grow back after construction.

4.9 This project will involve the use of heavy plant and vehicles, but all four trees are well away from the entrance, any access routes and likely storage areas, so are also not vulnerable to incidental damage.

Tree protection

4.10 The plan with this report illustrates suitable fencing and ground protection and serves as the tree protection plan (TPP) specified by BS5837. Once the layout is finalised these can be specified in more detail in an arboricultural method statement if required.

5 Conclusions

5.1 The two most significant trees are trees 2 & 3, the horse chestnut and Norway maple, but both are well away from the basement outline and work area, so they are not vulnerable to direct or indirect damage.

5.2 The magnolia and Japanese maple, trees 1 & 4, are less significant and the magnolia's life expectancy is limited. Small parts of their RPAs are within the building outline, but the proportions are insignificant, particularly with the maple. Work space will be needed within the RPAs, but the trees can be safeguarded with suitable protective measures. The maple might need some pruning, but can be allowed to grow back after construction.

5.3 The project will require some heavy machinery, but all four trees are well away from the entrance, access routes and storage areas, so they are not vulnerable to incidental damage.

5.4 The attached plan illustrates suitable tree protection measures, which can be specified in more detail in an arboricultural method statement if required.

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Tree no.	Species	Age / vigour	Ht. m	Spread				Dia. mm	RPA rad m	RPA area m^2	Crwn ht. m	Comments and recommendations	Cat
				N	S	E	W						
The trees are described in sequence as shown on the plan, starting near the back of the house and going round clockwise. Asterisks in the first column denote those in other ownership. Some dimensions of these are estimated.													
1	Magnolia *Magnolia soulangeana*	M/L	6	1	4	6	2	190 + 220	3.5	39	1.5	Has been partly uprooted shortly before the 2008 survey and the upper crown was dying back, probably due to the root damage. Since then it has had a large limb removed, the live foliage is still poor, there is more extensive die back and ivy growing on the larger stem. • *No urgent work needed but not suited for long term retention.*	C (U)
2 * (38)	Pink horse chestnut *Aesculus carnea*	M/N	14	3	6	6	6	700	8.4	222	5	One side due to growing next to the maple, but is sound and healthy looking. Has some swollen cankers on the trunk, but that is normal in pink chestnuts and there is no sign of any decay in them which can occur. Reduced at about 7m in the past and grown on but there are no signs of decay in the pruning cuts. • *No work needed at present.*	B
3 * (38)	Norway maple *Acer platanoides*	M/N	17	6	6	6	4	480	5.8	104	5	Variety "Schwedleri", which has purple tinged leaves. Also slightly one sided, but has a larger crown and is more vigorous than the chestnut, so is not being suppressed. Has also been reduced in the past and is growing on, foliage is dense and healthy. • *No work needed at present.*	B
4	Japanese maple *Acer palmaturm*	MA/N	5	3	3.5	3.5	2.5	110 + 130	2.0	13	1.8	Not very prominent, but is a healthy, well established specimen. • *No work needed at present, might need some pruning to facilitate work.*	C

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Notes

Observations are made from ground level unless stated otherwise.
Trunk diameters are measured in millimetres at 1.5m above ground or at the narrowest point between the root buttresses and branch flare in multiple trunked trees; in such cases this is indicated by [c].
Crown spreads are taken from the trunk centre to the end of the longest live branches in the directions indicated [usually the four cardinal compass points]
Crown height is the clearance under the lowest significant branches.

Tree ages are estimated as below, based on the normal life expectancy of a tree of the species concerned on the site:

Immature.	[IM]	Newly planted or self-set tree.
Young	[Y]	Young tree that is established but has not yet attained the size or form of a fully developed example of its type.
Middle aged	[MA]	Between one third and two thirds of its estimated lifespan.
Mature	[M]	Over two thirds of it's estimated life span.
Over mature	[OM]	Declining and/or approaching the end of it's natural lifespan.
Dying/Dead	[D]	Dead/dying or so badly decayed that it should be removed without delay if a potential threat.

Vigour is assessed on the basis of what is normal for that the species concerned as:

High	[H]
Normal	[N]
Low	[L]
Dead / dying	[D]

Root protection areas [RPAs] - BS5837:2012

For single trunked trees these are calculated as an area equivalent to a circle with a radius 12 times the trunk diameter at 1.5m. For multiple trunked trees it is based on the diameter of a single trunk that would have the same cross sectional area at 1.5m.

Any deviation from a circular plot should take into account the following factors whilst still providing adequate protection for the roots.

- The shape and disposition of the root system when known to be influenced by past or existing site conditions, such as the presence of roads, structures and underground services.
- Topography and drainage.
- The soil type and structure.
- The likely tolerance of the tree to root disturbance based on factors such as species, age and past management.

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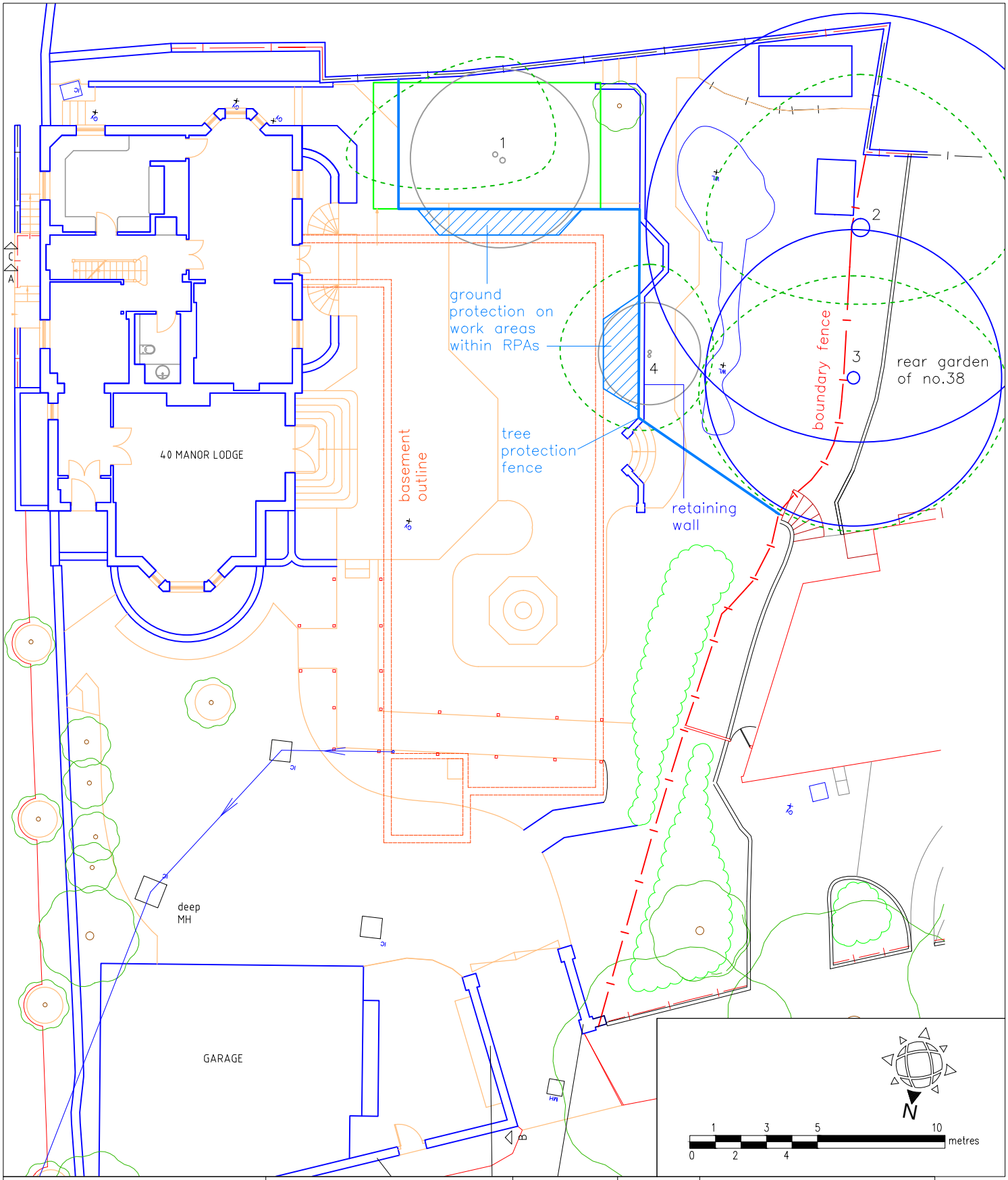
Tree categories – based on BS5837: 2012, Trees in relation to design, demolition and construction - Recommendations

Trees for removal				
Category and definition				**Colour code**
Category U				**Red**
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable structural defect, such that their early loss is expected due to collapse in the foreseeable future, including any that will become unviable after the removal of other U category trees. (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning.) • Trees that are dead or showing signs of significant immediate and irreversible decline. • Trees infected with pathogens significant to the health and/or safety of other trees nearby, or very low quality trees suppressing better ones nearby. *NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve.*			
Trees for retention				
Category and definition	**Criteria – sub categories**			**Colour code**
	1 – mainly arboricultural values	**2 – mainly landscape values**	**3 – mainly cultural / conservation values**	
Category A				
Trees of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant historical, commemorative or conservation value. (e.g. veteran trees or wood -pasture)	**Green**
Category B				
Trees of moderate quality with an estimated remaining life expectancy at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural benefits.	**Blue**
Category C				
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural benefit.	**Grey**



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Client: Mr J Paleomylites	Ref: 17/033	Rev: a
Site: 40 Frognal Lane, London, NW3 6PP	Scale: 1:250 at A4	
Title: Tree survey - existing and proposed layouts and tree protection plan (TPP)	Original drawing: TGN Architects	
Date: 28 June 2017		

Root protection areas [RPAs] are colour coded according to retention category from BS5837:2012, Trees in relation to design, demolition and construction:

A = green
B = blue
C = grey
U = red - dashed - also used to denote dead trees with no RPA
Tree protection fencing = mid blue
Crown spreads = mid green