the tree bureau

Arboricultural consultancy, design and management

Arboricultural Impact Assessment

17 Templewood Avenue

London NW3 7UY

Report date: 06 11 20

Report reference: AIA 7598

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1 Introduction

1.1 This impact assessment deals with the proposed development of a single-storey play room in the rear garden of 17 Templewood Avenue, London NW3 7UY. It assesses the trees that might influence or be influenced by the application development, outlines the key likely tree-related constraints and identifies issues that would need to be addressed if planning approval were granted.

1.2 Please read the report in conjunction with the *Tree Constraints Plan* (drawing TCP 7598) and the architect's drawings.

1.3 The framework for this report and its associated drawings is the British Standard BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations* because this is the Standard used by local planning authority officers when considering trees affected by development proposals.

1.4 Section 2 of the report deals with the site's current status. Section 3 deals with the tree condition and quality inspection, with the details of my findings shown in Appendix A. Section 4 considers the impact of the proposed development and Section 5 summarises my conclusions.

Background

1.5 I visited the application site on 08 October 2020 when I assessed the site and inspected the trees mentioned in this report.

2 The site in context

The site, access and levels

2.1 The application site has pedestrian and vehicle access from Templewood Avenue, a residential public highway. The site rises steeply from the road: spot heights are given on the accompanying *Tree Constraints Plan* (drawing TCP 7598).

Soil

2.2 The 1:50,000 map of the British Geological Survey on-line Geology of Britain viewer indicates the local bedrock geology to be Bagshot Formation – sand – without recorded superficial deposits and is close to an area of Claygate Member – clay, silt and sand. Geotechnical investigation in 2011/2012 showed Bagshot Formation over Claygate Member beneath a layer of made ground.

2.3 The on-line soilscape viewer by LandIS (The National Soil Resources Institute at Cranfield University) identifies freely draining, slightly acid loamy soils of low fertility.

Visual amenity

2.4 Trees visible from a public place are considered to provide local 'public visual amenity' – effectively 'borrowed' or 'shared' landscape features that contribute to the particular character and pleasantness of the neighbourhood – and there is a preliminary presumption for retaining them, if they are in safe condition.

2.5 No tree material to this application provides public visual amenity.

Statutory protection

2.6 The site is within the Redington Frognal Conservation Area. This means that proposed work to trees, other than the removal of dead branches, must first be notified to the local planning authority, either through a planning application or through a separate statutory notification procedure. Dead wood may be removed without council permission, provided that no live wood is cut.

2.7 The oak identified as T1 on the *Tree Constraints Plan* (drawing TCP 7598) and in Appendix A of this report is an oak identified as T63 on Tree Preservation Order TPO 16H, of 1957. A tree preservation order provides a greater level of statutory protection to a tree: work, other than the removal of dead wood, must have the council's permission before it is carried out.

2.8 Damage to protected trees is a criminal offence with steep penalties on conviction.

3 Tree inspection and tree constraints plan

Tree inspection and site assessment

3.1 My inspection was a visual tree assessment (VTA) of the above-ground parts of trees from ground level, following industry-standard procedures (see Appendix B). It was independent and impartial, and was not influenced by consideration of any development.

3.2 The results of the inspection are presented in two ways – a:
- schedule of my findings, shown in Appendix A of this report
- *Tree Constraints Plan* (drawing TCP 7598).

3.3 The inspection schedule includes preliminary recommendations for the management of the trees regardless of the future use of the site. Any additional or alternative management options needed because of the proposed development would be discussed in Section 4 of this report.

Quality/retention categories and their significance for the design

3.4 The inspection schedule and tree constraints plan shows 'quality/retention categories' based on criteria in the British Standard BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

3.5 The categories (and their Standard colours) are:
- U – unsuitable for retention in relation to the current land use (shown in dark red)
- A – high quality (shown in light green), with an estimated typical remaining life expectancy of at least 40 years
- B – moderate quality (shown in mid blue), with an estimated remaining life expectancy of at least 20 years
- C – low quality (shown in grey), with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

3.5.1 The British Standard also suggests numerical subcategories to explain the reasons behind the quality/retention grading. They are:
1) mainly arboricultural qualities
2) mainly landscape qualities
3) mainly cultural/conservation values.

3.5.2 In practice the subcategories often overlap and some trees might warrant all three, but I have noted only one subcategory for each tree to indicate the main reason for my category grading.

3.6 These categories provide rule-of-thumb guidance on a local planning authority's (LPA's) likely priorities when considering safe trees in relation to development proposals..
- It is unlikely that the LPA would countenance the removal of a category A tree.
- There is a presumption that category B trees will be retained wherever possible.
- The retention or removal of category C trees is not usually considered to be a significant constraint on development. Trees with a small stem diameter – below 150mm – could be considered for relocation within a site, if desired.
- Category U trees are graded as unsuitable because of safety considerations or other sound arboricultural reasons irrespective of any possible new development. They are considered to be in a condition that means they can realistically be retained alive in their current environment/circumstances for only up to 10 years, and possibly far less time.

My grading

3.7 I graded the trees:

- Category U – none.
- Category A – none.
- Category B – T1, G2, G3 provisional as off site, G4, G5, G7, G8 provisional as off site.
- Category C – G6, G9 provisional as off site.

Tree constraints plan

3.8 The *Tree Constraints Plan* shows most of the information derived from the tree inspection, together with other relevant matters:

- quality/retention category, given as a coloured circle representing the category grading in the position of the tree trunk
- indicative crown spread, shown in dark green
- minimum root protection area, shown in dark blue
- basic shading, based on BS5837:2012 criteria.

Crown spread

3.9 The crown spread is a general indication of the current length of the branches based on estimates in four cardinal directions. Trees often grow unevenly, so the actual position of branches should always be taken into account when designing structures. The vertical constraint of the lowest significant branch is shown in the inspection schedule in Appendix A.

Root protection areas

3.10 A circular root protection area (RPA), calculated from formulae in BS5837:2012, indicates the area around a tree containing theoretically sufficient roots and soil volume to keep the tree alive, healthy and upright: it is the area where the protection of roots and soil is treated as a priority.

3.11 Root protection areas shown on a tree constraints plan indicate the minimum area that should be left undisturbed and protected during demolition and construction. Even so, an RPA is a guideline and does not predict exactly where roots are growing. The actual pattern, depth and extent of root growth varies as a result of a wide range of factors, including the species and age of the tree, soil type, the presence of buildings and other structures and the surrounding environment. This means that a root protection area may be shown as a circle or polygon, depending on an arboricultural assessment of the circumstances: groups of hedging plants on this site are shown with RPAs as polygons. The position of the minimum root protection area of the oak T1 has been adjusted slightly north west to take account of the lack of an available rooting area adjacent to the house.

4 Arboricultural impact of the proposed development

Tree retention

4.1 The owners would like to retain all trees. As no plant would be removed, there would be no loss of canopy cover or landscape feature.

Pruning

Pruning for development

4.2 Some very light pruning by branch reduction of some of the southern magnolia in G5 might be needed to facilitate construction, and would be well within arboricultural tolerance.

Future pruning

4.3 Some future pruning of the southern magnolia in G5 might be needed, but this would be probably be desirable any event, regardless of development, to manage the scale of the trees in their setting. As a consequence, there would be no significant increase in pressure to prune these trees as a result of development.

Below-ground impact

Intrusion into minimum root protection areas

4.4 The proposed garden play room would intrude on:

- some 29m² of the root protection area of the oak T1 – just under 6% of the total
- about 2m² of the root protection area of the neighbouring yews in G8 – less than 1% of the total.

T1

4.5 Although the incursion into the root protection area of this tree is a small proportion of the total, the design also minimises potential long-term harm.

4.5.1 It is proposed to employ four to six small-diameter screw piles only to reduce the size and frequency of below-ground intrusion and damage to any roots present.

4.5.2 It is proposed to elevate the play room floor above ground level, so that gasses and water could continue to move through the soil, both of which are necessary for good root and soil health.

4.5.3 Rainwater from the roof would also be directed under the play room to help to irrigate any roots present.

G8

4.6 The less than 1% theoretical intrusion into the root protection area of these trees would have no or a negligible impact on yew, which is a traditional symbol of birth, rebirth and renewal because of its ability to generate new roots and branches.

Overview

4.7 Standard precautionary and protective measures and arboricultural monitoring would be needed during construction, including the use of protective fencing and temporary ground protection and the prohibition of anything other than hand-held tools and equipment. Details could be specified in a protection methodology.

Services

4.8 At this stage it appears that electricity could be installed from existing cables or from surface-mounted provision without the need for new service trenches within root

protection areas. If this were to change, the project arboriculturist would need to contact the tree officer in good time.

Use of a crane, scaffolding and skips

4.9 Any lifting equipment would lift vertically and would need to be positioned and managed so that it would not damage trees.

4.10 Scaffolding would need to be clear of any tree trunk or branches.

Tree- and soil-related foundation design

4.11 The specification of foundations must take account of the soil type and the impact of trees on soil-moisture content.

Shading by trees

4.12 The play room would be shaded by trees for most of the day, but this is not a main living area.

5 Conclusions

5.1 No tree would be removed to permit development, so there would be no loss of canopy cover or landscape feature.

5.2 Light pruning of some magnolias might be necessary to facilitate construction, but the work would be well within arboricultural tolerance.

5.3 The proposed development would not significantly increase pressure to prune trees in the future.

5.4 There would be a small incursion into the root protection areas of an oak and some neighbouring yews, but the design of the garden room would minimise below-ground intrusion, provide an above-ground floor so that gaseous diffusion and water percolation could continue through the soil, and would direct rain water under the structure to irrigate the soil.

5.5 Standard preventive, precautionary and protective measures would be needed during construction to protect trees from harm.

5.6 Provided that appropriate protective measures were specified and followed and that there were sufficient monitoring and adequate contingency measures to deal with any unexpected large tree roots discovered, it could be possible to develop the proposed scheme without long-term damage to trees.

APPENDIX A – TREE INSPECTION

Key to inspection schedule

Tree number on plan	
T1, T2 etc	individual tree
G1, G2 etc	group of trees
Stem	
The measurement is the stem diameter at 1.5m above ground level for single-stemmed trees, , unless stated otherwise, or the equivalent calculated stem diameter for multi-stemmed trees based on one of the two formulae for multi-stemmed trees in the British Standard BS5837:2012.	
First significant branch	
The height above ground level and direction of the first significant branch, which might be higher or lower than the mass of other leaves.	
Life stage	
New	Sapling or newly established tree, growing vigorously if healthy. Usually easy to transplant and re-establish.
Y	Young: still in the first third of typical life expectancy for the species and conditions. Growing vigorously, if healthy, but not necessarily yet producing seed. Possibly some scope for transplanting and re-establishing.
EM	Early-mature: in the second third of typical life expectancy for the species and conditions, producing seed, but not necessarily at full height or spread.
Mat	Mature: at full size and in the final third of typical life expectancy for the species and conditions. Annual growth slow and gradually reducing.
OM	Old-mature: old for the species and/or conditions and probably showing signs of senescence (very slow or no annual growth) and possible decline. Might also be described as a veteran tree, and may have special biological/ecological conservation value.
Vet	Veteran: a tree of special biological/ecological conservation, cultural or aesthetic value (or all three). Often, but not necessarily, older than the typical age range for the species. Younger trees might also qualify as a veteran because of features, such as a trunk cavity, that provide high wildlife/conservation value.
Anc	Ancient: an especially old tree with features of old mature and veteran trees, which is likely to be of high biological/ecological conservation, cultural and aesthetic value.
Remaining years, in age bands	
<10, 10-20, 20-40, or more than 40	
Physiological or structural condition	
Normal (physiological) or Good (structural)	no significant health problems or structural problems
Fair	some symptoms of ill health, or currently insignificant or remediable structural problems
Poor	significant symptoms of ill health, or significant structural problems
Senescent	growing very slowly or with no annual growth
Moribund	in serious and irreversible decline
Dead	no physiological function
BS 5837:2012 Category of quality/retention	
U A B C	Tree unsuitable for retention High quality and value, to be considered for retention Moderate quality and value, to be considered for retention Low quality and value, or young tree, which might be considered for retention

BS 5837:2012 Criteria for category of retention	
1. 2. 3.	Mainly arboricultural value Mainly landscape value Mainly cultural value, including conservation
Other abbreviations	
e	estimated
oi	measurement taken over ivy or other climber, or over basal shoots
rf	root flare (base of the tree)
ms	multi-stemmed
hcv	high conservation value
prov	provisional
N	north
E	east
S	south
W	west

Inspection schedule

Tree ident on plan	Species	Approx height in m	Stem diam-eter or equiv-alent in mm	Approx branch radius in m				Canopy height	First signif-icant branch height in m & direct-ion	Life stage	Physiological condition	Structural condition	Preliminary recommendations	Est. remain-ing contrib-ution in years	Category grading	Min RPA radius in m²
				N	E	S	W									
T1	*Quercus robur* oak	18.6	1,060	3.7	3.7	5	5	4.2	4.2 NE	Mat	Normal	Large old pruning wounds with good regrowth. Remains of fungal fruiting body of *Fistulina hepatica* (befsteak fungus), prov. ident, on trunk N at about 4.2m above ground level and several more at about 6.5m above ground level in old branch wound NE.	Arrange for an aerial inspction (ie. by climbing) by a tree surgeon experienced in making aerial assessments to check the integrity of the branch-trunk unions adjacent to the fungi. Arrange a reinspection every 24 months.	>40	B 1	12.7

Tree ident on plan	Species	Approx height in m	Stem diam-eter or equiv-alent in mm	Approx branch radius in m				Canopy height	First signif-icant branch height in m & direct-ion	Life stage	Physiological condition	Structural condition	Preliminary recommendations	Est. remain-ing contrib-ution in years	Category grading	Min RPA radius in m²
				N	E	S	W									
G2	14no. *Taxus baccata* yew	2.5	60-60	0.5	0.5	0.5	0.5	0.2	0.2 N	EM	Normal	Good	None	20-40	B 2	1.0
G3 of site	4no. est *Acer pseudoplatnus* sycamore	16est	300 est	4	4	4	4	4	–	Mat	Normal, so far as visible	Normal, so far as visible	None	20-40	B 2	3.7
G4	14no. *X Cuprocyparis leylandii* Leyland cypress	10	100-170	1.5	15	1.5	1.5	2.5	2.5 E	EM	Normal. Honey fungus present in soil near one trunk.	Good, but tall.	Consider arranging a height reduction of about 2m within the next 12 months before the trees become difficult to manage.	20-40	B 2	2.0
G5	6no. *Magnolia grandiflora* cultivar bull bay/southern magnolia	2.5	70-80	1	1	1	1	1	2.5 E	EM	Fair	Good	None	20-40	B 2	1.0

Tree ident on plan	Species	Approx height in m	Stem diam-eter or equiv-alent in mm	Approx branch radius in m				Canopy height	First signif-icant branch height in m & direct-ion	Life stage	Physiological condition	Structural condition	Preliminary recommendations	Est. remain-ing contrib-ution in years	Category grading	Min RPA radius in m²
				N	E	S	W									
G6	17no. *Taxus baccata* yew	2.3	60-60	0.5	0.5	0.5	0.5	0.2	0.3 SW	EM	Most normal or slightly suppressed; 2 dead and 3 in poor condition: poss drought damage	Good	Replace damaged hedge sections	20-40	C 2	1.0
G7	7no. *Magnolia grandiflora* cultivar bull bay/southern magnolia	2.5	70-80	1	1	1	1	1	2.5 E	EM	Fair	Good	None	20-40	B 2	1.0
G8 off site	4no. est. *Taxus baccata* yew	7.6est	300 est	2	2	2	2	3	-	Mat	Normal, so far as visible	Normal, so far as visible	None	20-40	B 2	3.7

Tree ident on plan	Species	Approx height in m	Stem diam-eter or equiv-alent in mm	Approx branch radius in m				Canopy height	First signif-icant branch height in m & direct-ion	Life stage	Physiological condition	Structural condition	Preliminary recommendations	Est. remain-ing contrib-ution in years	Category grading	Min RPA radius in m²
				N	E	S	W									
G9 off site	Indistinct mixed group possibly including cypress and holly	5est	80-120 est	1.5 est	1.5 est	1.5 est	1.5 est	-	-	Mat	Fair, so far as visible	Not known	None	10-20	C 2	1.4

APPENDIX B – SCOPE

1 This report and its associated *Tree Constraints Plan* are based on arboricultural criteria only. Comments and drawings relating to non-arboricultural matters must be viewed as provisional and referred to appropriate specialists for confirmation and specification.

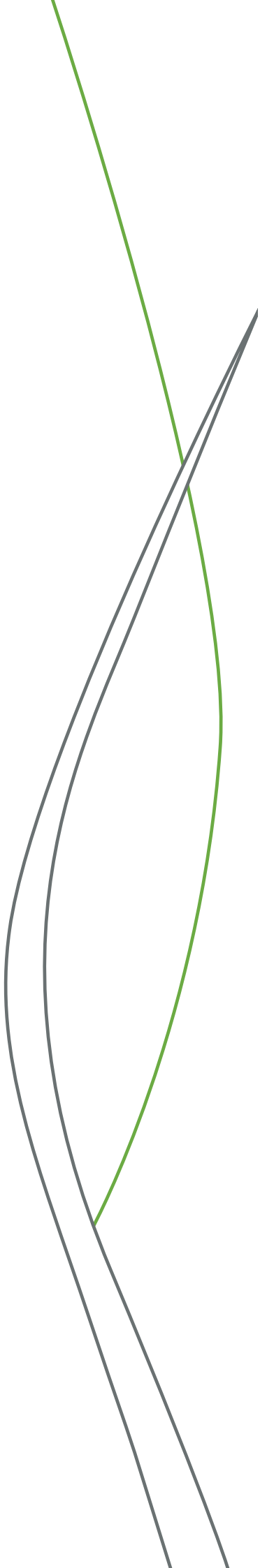
2 The tree condition survey was a visual tree assessment (VTA) from ground level, following industry-standard procedures, based largely on the principles described in *The body language of trees – A handbook for failure analysis*, by Claus Mattheck and Helge Breloer, and *Principles of Tree Hazard Assessment and Management*, by David Lonsdale. This was an independent and impartial assessment of the condition of the trees and was not influenced by consideration of any proposed scheme.

3 There was no invasive investigation, such as test-boring of a tree, and no branch, leaf, fruit or root samples were collected for analysis. No survey was made of water bodies, drains or drainage systems.

4 The information from the British Geological Survey and LandIS provide a general indication of soils in the area, but no reliance should be placed on them for the application site, as actual soil composition can vary over short distances.

5 Trees are dynamic and sometimes unpredictable organisms. They change as they mature and decline, change in response to changing conditions around them (including weather), or change for reasons that research has not yet fully explained. The tree inspection deals with the tree condition observed on the day the inspection was carried out.

6 Any tree work mentioned is subject to planning permission. If approved, it must take full account of wildlife and habitat protection legislation and tree phenology (natural cycle). Tree work should be carried out to modern arboricultural standards, as recommended in British Standard BS3998:2010 *Tree Work – Recommendations*.



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