PATRICK STILEMAN LTD
ARBORICULTURAL CONSULTANCY

Institute of Chartered Foresters
Registered Consultant

Principal Consultant: Patrick Stileman BSc(Hons), MICFor, Dip. Arb (RFS), M. Arbor. A

9 Chestnut Drive, Berkhamsted, Hertfordshire, HP4 2JL • Tel: 01442 866112
Email: patrick@treeconsulting.co.uk • www.treeconsulting.co.uk

TREE SURVEY REPORT

In accordance with British Standard 5837 2012 '*Trees in Relation to design, demolition and construction – Recommendations*'

Project
115 Frognal, London, NW3 6XR

Client
Paul Crocker

Prepared by
Patrick Stileman BSc(Hons), MICFor, Dip. Arb (RFS), M.Arbor.A

Date
20th April 2016

Document reference:
DS23031601

1 INTRODUCTION

1.1 I am Patrick Stileman, Director of Patrick Stileman Ltd. I am acting on instruction of the client, Paul Crocker. I have qualifications and experience in arboricultural consultancy and I have given details of this in Appendix 1.

1.2 Brief:

1.2.1 Patrick Stileman Ltd is instructed by the client to undertake a survey of trees which could potentially be affected by development proposals at 115 Frognal, London, NW3 6XR, in accordance with British Standard 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' (hereafter referred to as BS5837). We are to survey all trees with stem diameters in excess of 75 mm at a height of 1.5 metres, including those off site which could pose a potential constraint to development.

1.2.2 Based on the data collected in the tree survey we are to show constraints to development posed by trees at a preliminary level in a Tree Constraints Plan.

1.2.3 The purpose of the information provided at this stage is to give advice on the principal tree constraints in relation to development in order to assist the design process towards the preparation of an arboriculturally defensible scheme.

1.3 Caveats:

1.3.1 I surveyed trees at a preliminary level only. The survey must not be substituted for a tree risk assessment report. Detailed inspection including decay mapping, aerial inspections, root or soil analysis etc. was not undertaken. In cases where I consider that further investigation is required I note this in the preliminary management recommendations column of the tree survey data.

1.3.2 The trees were viewed from public vantage points and within the site boundaries only. I had no access to third-party property.

1.3.3 This Tree Survey Report comprises Stage 1 of a five stage arboricultural process relating to planning. Stage 2 is the arboricultural input required during layout design taking account of arboricultural features and constraints; Stage 3 is the preparation of supporting documentation (Arboricultural Impact Assessment); Stage 4 is the preparation of an Arboricultural Method Statement specifying how trees will be physically protected during the development process; and Stage 5 is the implementation, supervision and on-going monitoring of the works during development.

1.4 **Survey date:** Trees were surveyed by me, Patrick Stileman, on 14th April 2016.

2 TREE SURVEY

2.1 **Tree identification:** Individual trees have been allocated a number, and groups of trees have been allocated a number prefixed by the letter G. Their locations are shown on the Tree Survey Plan drawing no: DS23031601.01, included on Page 10 of this report. Data pertaining to each tree or group of trees is included in the Tree Survey Data on Pages 8-9 of this report.

2.2 **Tree data:** In carrying out the survey I assessed the following for each tree and group of trees:

- Dimensions (height, crown spread, stem diameter, and height of crown base).
- Root protection area, based on stem diameter (See 4.6).
- Life stage and physiological condition.
- Structural defects of significance, and general condition. Assessment of the value that the tree provides from a wider landscaping perspective.
- An assessment of the likely remaining useful contribution in years.

Based on the above information, I have allocated a category (A, B, C, U) indicating the quality and value for each tree or tree group (in accordance with BS5837), to be taken into account when planning any future development.

3 STATUTORY PROTECTION

3.1 I have been informed by the client's agent that the two lime trees at the front of the site (Trees 7 and 8 of this survey) are protected by a tree preservation order (TPO). I have been sent a copy of the TPO and its reference is No 11 of 1957 – an order protecting trees over a large area. The trees are named on the TPO as individuals T17 and T60 respectively.

3.2 I have also been informed that the site is located within a conservation area. By virtue of this, all trees (bar certain exemptions) are afforded provisional statutory protection.

4 TREE CONSTRAINTS PLAN

4.1 Based on the information obtained by the tree survey I have prepared a Tree Constraints Plan (TCP), drawing no: DS23031601.02 included as Page 11 of this report.

4.2 On the TCP, I have used different colours indicating tree crowns to distinguish between trees which could defensibly be removed in order to facilitate development (broken blue); and trees with a higher retention priority which should, initially, be considered for retention (solid green). The TCP has been prepared as a working drawing and the suggested tree retention / removal balance is not definitive.

4.3 Category C trees are classified as trees of low quality; they should not impose significant constraints to design layout and if necessary can defensibly be shown for removal in order to facilitate good design. If Category C trees can be satisfactorily retained within the proposed layout then consideration should be given for this.

4.4 Category B trees are classified as trees of moderate quality, which covers a large range. Category B trees are frequently specimens which should be considered for retention initially; however some can be of insufficient value to impose significant design constraints and removal of such trees may be defensible in order to promote good design (usually on the basis that mitigation is provided elsewhere on the site in the form of high quality new planting).

4.5 Category A trees are classified as trees of high quality and there should be an initial presumption for retention of these.

4.6 The TCP shows the position of the Root Protection Area (RPA) for trees with a higher retention priority as broken pink lines. BS5837 (Section 3.7) defines the RPA as a '*layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority*'. In other words, the RPA represents the **minimum** area around each tree in which the ground should remain largely undisturbed. The RPA is an area based on a circle with a radial distance of 12x the stem diameter at 1.5 metres in the case of single-stemmed trees, or 12x the combined stem diameter (calculated in accordance with a formula set out in BS5837) for trees with more than one stem. In situations where the site conditions clearly prevent consistent rooting around the tree (for example the presence of roads or buildings within the notional RPA circle) I modify the shape of the RPA to take this into account. At 115 Frognal I have adjusted the RPA shape for Trees 5, 7 and 11 to take account of features likely to restrict rooting.

4.7 At the design stage (Stage 2 – see Section 1.3.3), detailed advice should be given by the arboriculturalist, specifically in relation to the above ground constraints, namely:

1. Future growth predictions for the key retention trees where this is likely to be significantly different to their existing dimensions.

2. The effects of dominance and shading posed by trees in a) their current context, and b) taking account their future likely growth.

This level of detailed advice is beyond the scope of this report which is preliminary in nature.

5 SOIL

5.1 I am not aware if a detailed soil analysis has been undertaken at this site. I did not take soil samples while on site however I have looked at the British Geological Survey plan to establish the likely nature of the soil present. This indicates that the bedrock geology is made up of the Bagshot Formation, with no superficial deposits above.

5.2 The soils associated with the geology described above are likely to be slightly acidic well-drained loams.

5.3 There may be local anomalies not shown in the British Geological Survey maps and a more detailed site specific soil assessment should be undertaken if required.

6 KEY TO TREE SURVEY DATA

6.1 **Tree / Group reference:** Tree numbers as shown on the Tree Survey Plan. Where trees form a coherent group, they have been assessed as a group, and are shown in the survey and on the plan prefixed with the letter G.

6.2 **Species:** These are listed in the schedule by their common name. The botanical names of the principal species present are as follows:

Lawson cypress: *Chamaecyparis lawsoniana*
Magnolia: *Magnolia sp*
Orchard apple: *Malus domestica*
London plane: *Platanus x hispanica*
Corsican pine: *Pinus nigra* subsp. *laricio*
Common lime: *Tilia x europaea*
Bay: *Laurus noblis*
Strawberry tree: *Arbutus unedo*
Beech: *Fagus sylvatica*
Yew: *Taxus baccata*
Sycamore: *Acer pseudoplatanus*
Copper beech: *Fagus sylvatica* 'Purpurea'

6.3 **Ht. (m):** The height of the tree is measured or estimated to the nearest metre.

6.4 **Crown spread – NSWE:** Radial crown spread measured or estimated, rounded up to the nearest metre, for north, south, west and east.

6.5 **Crown base:** The height above ground level and orientation of the lowest permanent crown base (excluding basal, and small epicormic growth).

6.6 **Stem count:** For trees recorded as individuals, the number of stems recorded for the purpose of RPA calculation (where stem numbers exceed 5 an average diameter is assessed).

6.7 **Stem dia:** In the first column the stem diameter is recorded for trees with a single stem, or the first measured stem where there are fewer than five, or the average stem diameter for trees with more than 5 stems. The diameter of individual stems for trees with up to five stems is recorded in columns 2-5. Measurements are shown in mm, rounded to the nearest 10. In some situations it is not possible to measure the diameter of stems, and for these estimates are made. When stem diameters have been estimated they are written in *italics*. Measurements are taken in accordance with BS5837 Annex C. For tree groups, stem measurements are recorded for the largest tree in the group.

6.8 **RPA Rad:** This shows the radius of the notional RPA circle in metres to be centered on the tree, based on the calculation made using the stem diameter.

6.9 **RPA Area:** This shows the calculated RPA in m^2 for each tree (as individuals or within groups). If the notional RPA circle is adjusted (see 4.6) the area must be maintained. The RPA area is capped at 707 m^2, equivalent to a circle with a radius of 15m.

6.10 **Life Stage:** An assessment of the tree's stage of life, where: Y = young, SM = semi-mature, EM = early-mature, M = mature, and OM = over-mature.

6.11 **Phys. Condition:** The physiological condition of the tree, reflecting the condition of the vascular system as indicated by leaf and shoot vitality. The physiological condition is not a comment on the tree's structural condition. The physiological condition codes used are G = good; F = fair; P = poor; D = dead.

6.12 **Condition and observations:** Description of general tree condition, including structural integrity, the presence of hazards, pests and diseases which may affect the tree's retention span.

6.13 **Preliminary management recommendations:** Work required to trees for reasons of sound arboricultural management only, **not for development facilitation**. This is not to be taken as a list of tree work required prior to development activity, but provides management recommendations for trees in their current context. This may include the further investigation of suspected defects. Where trees are located in neighbouring property, this is usually not applicable.

6.14 **Ret span:** Estimated remaining likely retention span based on species, condition & context. The following longevity bands are used: <10; 10-20; 20-40; >40. The retention span assessment is based on trees in their current context.

6.15 **Category:** BS5837:2012 Category where:

6.15.1 **U = Trees unsuitable for retention**. Trees 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. These trees are shown on the tree plans with dark red centres.

6.15.2 **A = Trees of high quality**. Trees of high quality with an estimated remaining life expectancy of at least 40 years. These trees are shown on the tree plans with green centres.

6.15.3 **B = Trees of moderate quality**. Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. These trees are shown on the tree plans with blue centres.

6.15.4 **C = Trees of low quality.** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. These trees are shown on the tree plans with grey centres.

6.15.5 Trees of notable quality are graded as Category A or Category B. These trees are divided further into sub-categories. Sub-category 1 is allocated where it has been assessed that the tree has mainly arboricultural qualities. Sub-category 2 is allocated where it is assessed that the tree has mainly landscape qualities. Sub-category 3 is allocated where it is assessed that the tree has mainly cultural qualities, including conservation.

6.15.6 Trees may be allocated more than one sub-category. All sub-categories carry equal weight, with for example an A3 tree being of the same importance and priority as an A1 tree.

6.15.7 I do not allocate sub-categories to Category C trees.

Patrick Stileman

PATRICK STILEMAN BSc(Hons), MICFor, Dip.Arb(RFS), M.Arbor.A
Chartered Arboriculturist. Arboricultural Association Registered Consultant

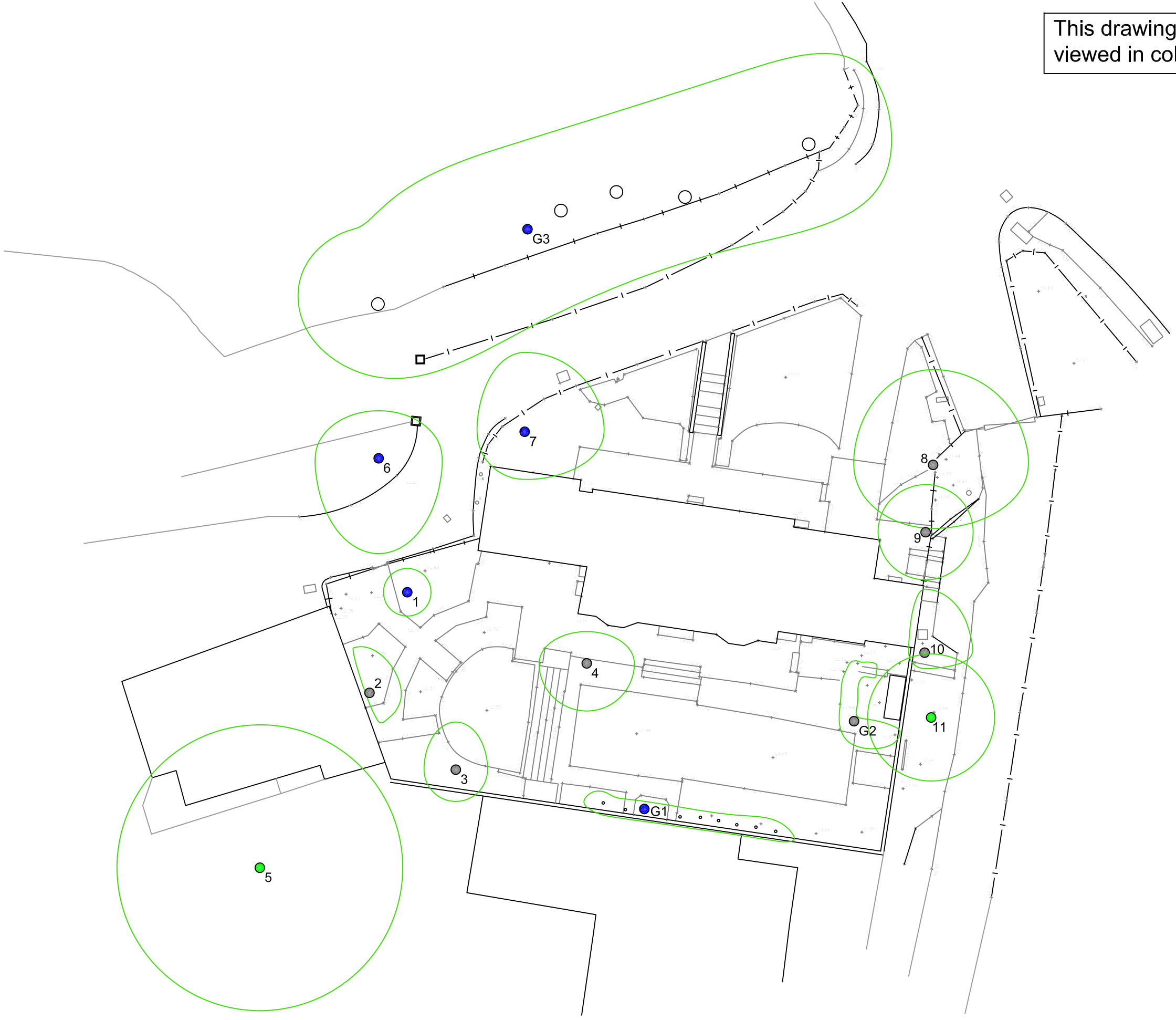
Director Patrick Stileman Ltd

115 FROGNAL : TREE SURVEY DATA

Tree / Group reference	Species	Ht. (m)	Crown Spread (m)				Crown base (m)	Stem Count	Stem Dia. (mm)					RPA Rad. (m)	RPA Area (m2)	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Condition and observations	Preliminary management recommendations	Ret. Span <10, 10+ 20+, >40	Grade U-A-B-C
			N	S	W	E			1 / mean	2	3	4	5								
1	Lawson cypress	9	1.5	1.5	1.5	1.5	1m S	1	230					2.76	24	EM	F	Small tree of moderate quality and value just crossing B grade threshold.	No action required at time of survey	>40	B1
2	Magnolia sp	4	3	2	0	2	1m E	1	*100*					1.20	5	SM	F	Growing against wall of garage. Small tree of relatively low significance.	No action required at time of survey	10+	C
3	Apple	5	3	2	2	2	2m N	1	280					3.36	35	M	F	Regularly pruned for fruit. Small tree of relatively low significance.	No action required at time of survey	>40	C
4	Apple	4	2	3	3	3	1m W	1	210					2.52	20	M	F	Regularly pruned for fruit. Small tree of relatively low significance.	No action required at time of survey	>40	C
5	London Plane	30	9	9	9	9	3m E	1	*1200*					14.40	651	M	G	Located off-site in neighbouring property. Very large, prominent tree of high quality.	No action required at time of survey	>40	A1
6	Corsican Pine	16	3	6	4	4	1m W	1	550					6.60	137	EM	F	Slight crown asymmetry and lean to south. Growing in island bed centrally within road. Tree of moderate quality and value.	No action required at time of survey	>40	B1
7	Common lime	20	5	3	3	5	6m S	1	1050					12.60	499	M	F	Large, highly prominent tree in close proximity to existing building. Re-grown from heavy past crown reduction. Evidence of trenching in road close to stem.	No action required at time of survey	20+	B1

Tree / Group reference	Species	Ht. (m)	Crown Spread (m)				Crown base (m)	Stem Count	Stem Dia. (mm)					RPA Rad. (m)	RPA Area (m2)	Life Stage Y-SM-EM-M-OM	Phys. Condition G-F-P-D	Condition and observations	Preliminary management recommendations	Ret. Span <10, 10+ 20+, >40	Grade U-A-B-C
			N	S	W	E			1 / mean	2	3	4	5								
8	Common lime	19	6	4	5	6	3m S	1	870					10.44	342	M	F-P	Large, highly prominent tree on road frontage. Tapping base revealed highly decayed buttress on west side. Decay consistent with that caused by *Kretzschmaria deusta*, though no fungal fruiting bodies seen. Twin-stemmed from 5 metres - cavity has developed between stems and from ladder open cavity seen extending down stem by approximately 1 metre. Tree is retainable only with heavy reduction. Removal to facilitate development can be justified.	Reduce tree height by 40%. Re-inspect annually	10+	C
9	Bay	8	3	3	3	3	2m W	13	90					3.90	48	M	F	Multi-stemmed from ground level. Tree of relatively low significance.	No action required at time of survey	20+	C
10	Strawberry tree	6	4	1	1	3	1m E	9	90					3.24	33	M	F	Multi-stemmed from ground level. Pronounced lean to north-east away from wall.	No action required at time of survey	10+	C
11	Common lime	14	4	4	4	4	3m S	1	420					5.04	80	EM	G	Located in verge beyond retaining boundary wall. Good form and high future potential.	No action required at time of survey	>40	A1
G1	Beech	3	0.5	0.5	0.5	0.5	1.5m N	1	150					1.80	10	SM	G	Pleached trees with clear stems, providing useful screening function on boundary.	Remove for reasons of sound arboricultural management	>40	B2
G2	Yew	2	0.5	0.5	0.5	0.5	0m N	1	*100*					1.20	5	SM	G	Short clipped hedge forming three sides of square to screen oil tank.	No action required at time of survey	>40	C
G3	Sycamore, common lime, copper beech	14 to 20	6	6	6	6	3m S	1	*600*					7.20	163	M	G	Located off-site in neighbouring property. Six prominent trees in group close to boundary. No access to inspect.	No action required at time of survey	20+	B2

This drawing must be viewed in colour



TREE SURVEY PLAN

SITE ADDRESS
115 Frognal, London, NW3 6XR

CLIENT
Paul Crocker

JOB REF
DS23031601

DRAWING NO
DS23031601.01

DATE
20/04/2016

N

Patrick Stileman Ltd
9 Chestnut Drive, Berkhamsted, Herts,
HP4 2JL 01442 866112

KEY

Tree canopy spread

BS 5837 Category key

- Category U tree
- Category A tree
- Category B tree
- Category C tree

SCALE
1:250 @ A3

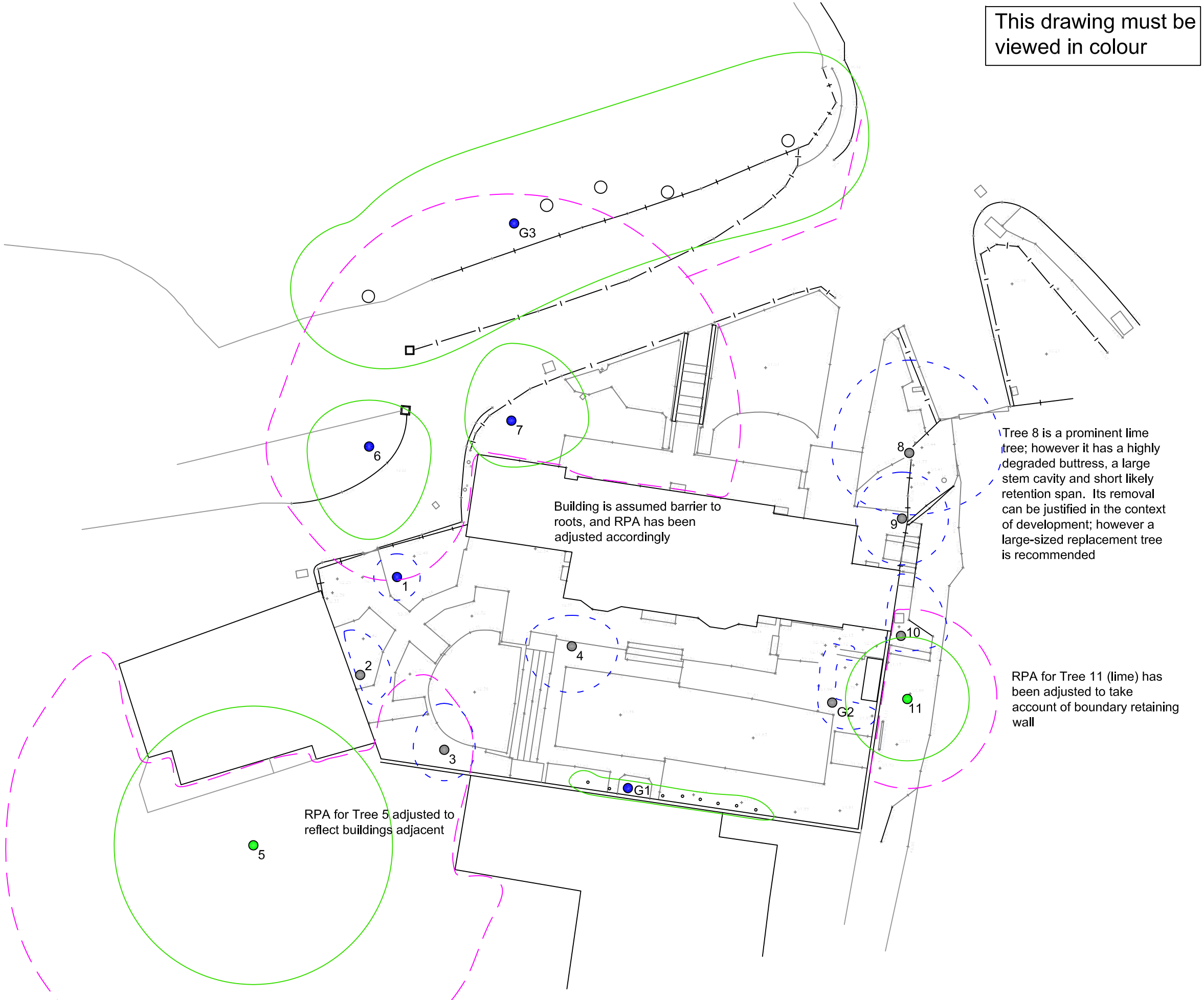
0 5m 10m

NOTE:

Stem diameters are not drawn to scale. See schedule for dimensions

This drawing is based on the topographic survey provided to us by the client. The following tree was not included on the topographic survey and its location shown is indicative only: 6

This drawing must be viewed in colour



TREE CONSTRAINTS PLAN

SITE ADDRESS
115 Frognal, London, NW3 6XR

CLIENT
Paul Crocker

JOB REF
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DRAWING NO
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DATE
20/04/2016

N

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KEY

Tree / tree group which should initially be considered for retention

Tree / tree group which could initially be considered for removal

Root Protection Area (RPA) for tree with high retention priority, and for off-site tree

BS 5837 Category key

- Category U tree
- Category A tree
- Category B tree
- Category C tree

SCALE
1:250 @ A3

0 5m 10m

NOTE:

Stem diameters are not drawn to scale. See schedule for dimensions

This drawing is based on the topographic survey provided to us by the client. The following tree was not included on the topographic survey and its location shown is indicative only: 6

APPENDIX 1

Qualifications and experience of Patrick Stileman BSc(Hons), MICFor, Dip.Arb(RFS), M.Arbor.A

I am Patrick Stileman, director of Patrick Stileman Ltd Arboriculltural Consultancy.

My qualifications in arboriculture are as follows:

National Certificate in Arboriculture *Nch(arb)*

The Arboricultural Associations Technicians Certificate *Tech.Cert (Arbor.A)*

The Royal Forestry Society's Professional Diploma in Arboriculture *Dip.Arb(RFS)*

In addition to the qualifications listed above which are specific to the field of arboriculture, I also hold an honours degree in Environmental Science *BSc(Hons)*.

I hold chartered status, being a Chartered Arboriculturist and professional member of the Institute of Chartered Foresters *MICFor*.

I am a registered consultant with the Arboricultural Association.

I am a trained expert witness, and hold the Cardiff University Bond Solon Expert Witness Certificate.

I am a member of the Royal Forestry Society.

I have been working within the arboricultural industry since 1994 and have been working as a consultant since 2001. I am frequently instructed by professionals to provide advice and assistance relating to trees within the planning process; I have a wide client base in this field including developers, architects, planning consultants, and Local Planning Authorities. I am experienced with providing arboricultural input in planning appeals as written representation, informal hearing and public local inquiry.

I am regularly instructed to assist with tree risk assessments, and to provide guidance relating to tree safety. Past clients for this work include Local Authorities, schools, residents associations, large organisations including zoos and estates, and private individuals.

I provide advice in relation to alleged tree-related damage to buildings. Clients for this work are typically domestic homeowners, but have also included Hertfordshire County Council and Dacorum Borough Council. Other work that I undertake involves the provision of tree planting schemes; and advice relating to the general management of trees.

I have worked as an arboricultural expert witness for public and private sector clients.

Prior to running my current consulting practice, I was a partner in an arboricultural contracting business in which I was involved with the practical aspect of organising, and execution of contract tree work.