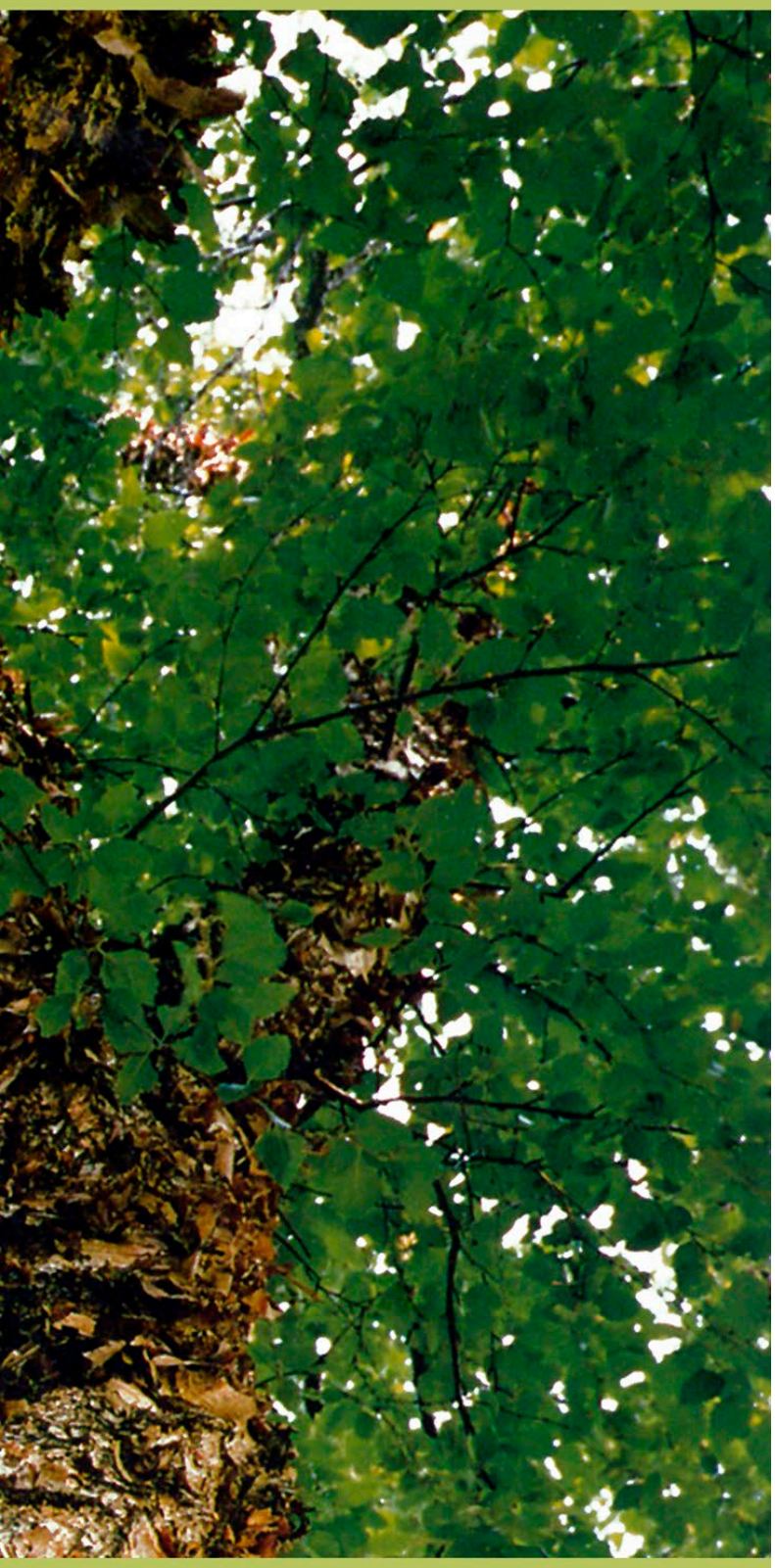

Arboricultural Survey

UCL MAIN QUAD TEACHING FACILITY LONDON

Produced for:
University College London Estates

April 2022

tree : fabrik

Ref: TF1212-FAB-00-XX-RP-G-002001
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1. INTRODUCTION

1.1 Instructions were received from UCL Estates to carry out an assessment of trees located within the main quad at University College London, Gower Street, London, WC1E 6BT.

1.2 The assessment has been carried out in accordance with *BS5837 (2012) Trees in relation to design, demolition and construction – recommendations.* The BS gives recommendations and guidance on the relationship between trees and the design, demolition and construction processes.

1.3 The purpose of this report is to present the results of that assessment based on the condition, quality and value of the tree stock in order to enable an informed approach to the removal or retention of trees and identify design constraints should future development occur.

1.4 The following land survey was provided prior to carrying out this assessment;

- Topographical Survey dated Nov 2016 (surveyor unknown)

1.5 A copy of the limitations, methodology and tree survey schedule forms Appendix 1. An illustrative tree survey reference plan forms Appendix 2. The Root Protection Area (calculations) forms Appendix 3 and a photographic record of the general tree stock forms Appendix 4.

2. SITE DESCRIPTION

2.1 The site is located to the east of Gower Street and formed by a lawn within the main Quad of the University College London building.

2.2 The site is bound to the north, east and south by buildings with basement and sunken areas extending into the quad beyond the building line to the east and south. To the west, within the Quad, a temporary event space is located within the soft ground area.

2.3 The site is flat with the main lawns separated by formal footpaths and areas of hard standing to the north. Within the eastern lawn, a small building is located to the northwest corner.

2.4 Within the local landscape, the site is enclosed from views directly from Gower by the existing building and the lawns provide a formal space to the building.

3. STATUTORY DESIGNATION (Trees)

3.1 The site lies within the Bloomsbury Conservation Area. As such, six weeks prior notice must be given to Camden Council in writing prior to carrying out tree works.

3.2 All tree works must be carried out by a competent person experienced in arboriculture and in accordance with British Standards 3998 (2010) Recommendations for tree work.

3.3 Attention is drawn to the responsibilities under the Wildlife & Countryside Act (1981) as amended by the Countryside and Rights of Way Act 2000. This may place additional constraints on trees above that considered within this report.

4. TREE SURVEY

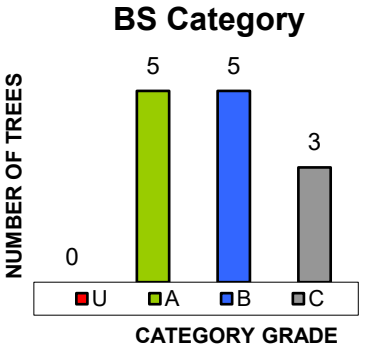
4.1. General

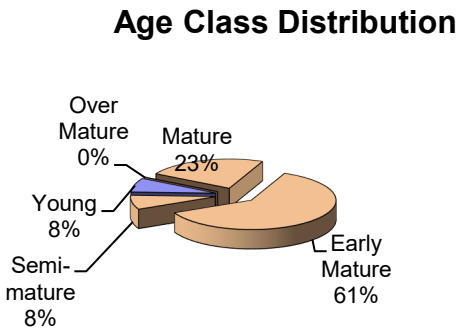
4.1.1 This assessment was carried out in accordance with the guidance and recommendations of British Standards 5837: (2012) 'Trees in relation to design, demolition and construction' and good arboricultural practice.

4.1.2 Trees identified within this assessment were visually inspected from ground level by a person qualified and experienced in arboriculture. The tree's common name and its dimensions are recorded within the tree survey schedule together with their age, physiological, structural condition and a category code.

4.2. Observations

4.2.1 A total of 13 individual trees were assessed within the survey schedule including 5 category 'A' trees, 5 category 'B' trees and 3 category 'C' trees in accordance with British Standards 5837 (2012) 'Trees in relation to design, demolition and construction'.





4.2.2 In general, trees within the site are of a mixed age range and are of fair health and condition. Species include an Indian Bean Tree (Catalpa bignonioides), Lime (Tilia sp) and Maidenhair Tree (Ginkgo biloba).

4.2.3 The principal arboricultural features are located to the entrance of the Quad (Lime T10 & T11) and a linear group of Lime (T1 to T6) located to the eastern side of the Quad. These trees are matched by a similar group of Lime located to the western side of the Quad.

4.2.4 The Lime trees appear to have been regularly maintained including removal of deadwood and clearance maintained to adjacent building elevations. The mature Lime (T3, T4 & T6) display previous crown reduction and crown lifting.

4.2.5 Whilst the three Maidenhair Trees (T8, T9 & T12), located either side of the main access to the Quad, accrue some visual amenity, they form an incongruous species in context of the symmetry of the Lime and formality of the Quad. Of these trees; the lateral branches of T8 have been significantly shortened which has impacted on the trees characteristic form and visual amenity; and T12 is twin-stemmed displaying a tight fork formation. As such, they have been downgraded and assessed as 'C' category within the tree survey schedule.

4.2.6 Elsewhere, the Indian Bean Tree, a memorial tree, and the Tulip Tree are both of fair health and are of domestic scale.

4.2.7 To the east and south of the eastern Quad, it is understood that a basement projects outwards from the main building line beneath the Quad. As such, these structures have potential to influence the morphology and disposition of adjacent roots with a bias of tree roots to the soft ground areas. The adjusted preliminary RPA to maintain the RPA m^2 in accordance with BS5837 (2012) is illustrated within the tree survey reference plan [TF1052/TS/100] for reference.

4.2.8 For detailed assessment of each individual tree please refer to the tree survey schedule (Appendix 1).

5. DESIGN CONSIDERATIONS

5.1 Consideration should be given to the physical and biological constraints presented by both the above (crown) and below ground (roots) features of the trees.

5.2 The root protection area (RPA) is a design tool indicating the area surrounding a tree that contains sufficient rooting area to ensure survival of the tree in m^2.

5.3 Building within the RPA should therefore seek to minimise impact on the root environment. Designs for foundations that would minimise the adverse impact on trees should include particular attention to existing levels, proposed finish levels and cross-sectional details.

5.4 The smallest pad or pile foundation should be considered within the foundation design taking into account the load bearing capacity of the soils and the pads/piles being positioned to avoid major roots. This may require trial excavation with the holes for foundations excavated using handheld tools.

5.5 Similarly, the floor should be constructed with a ventilated air space between the underside of the floor and the existing soil surface to enable gaseous exchange and venting through the soil surface. An irrigation system should also be implemented to maintain moisture content of the soils.

5.6 Above ground, construction should take into account the trees crown and access, particularly where the new structure is located within the crown spread of the Lime. This may include assessment of crown height and significant branches, proprietary methods to minimise drains and gutters from being blocked and access for maintenance to remove seasonal debris such as; leaf or twigs.

5.7 Provision for ground protection, haul routes and practical construction including overhead space during construction should be made in order to minimise compaction, root disturbance or contact with existing tree crowns.

5.8 It is therefore recommended that arboricultural advice be sought during the design process from an arboriculturist and that an Arboricultural Development Report be submitted in support of a planning submission. This Report provides an arboricultural impact assessment of the proposal, identifies trees to be retained or removed and demonstrates that those trees to be retained can be adequately protected through the construction process and the lifespan of the temporary building.

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APPENDIX 1

Tree Survey Schedule

Limitations

Trees are living organisms whose health and condition can change rapidly. The validity of this report and conclusions or recommendations cease at the prescribed period of two years from the site inspection or if the site conditions change due to unspecified works that affect the subject tree(s) whichever is the sooner.

This tree survey assessment is a basic data collection exercise for the sole use of identifying site constraints in context of the planning process and a record of the trees condition at the time of assessment. This is not a vegetation assessment for NHBC guidance or a higher level inspection (full hazard or risk assessment) and no guarantee, either expressed or implied can therefore be given with regards to identification, safety, stability or internal condition.

All observations are confined to that which was visible from the site. Where dense ivy/ground vegetation hampered visual assessment of trees assessed its quality and condition was assessed from that which was visible from the point of inspection. This preliminary assessment may therefore be subject to amendment following additional detailed inspection.

Tree Assessment Methodology

The assessment was carried out in accordance with the recommendations of British Standards 5837: (2012) and good arboricultural practice.

Trees identified within this assessment were inspected from ground level by a person qualified and experienced in arboriculture using the Visual Tree Assessment Method (VTA). Visual assessment, in accordance with accepted arboricultural practice, was based on visual observation of vitality (leaf cover, extension growth), presence of deadwood and die back, fractured and detached limbs, structural form or external indications of stem and basal decay likely to affect the structural condition of the tree. No decay detection equipment either invasive or non-invasive was employed.

For the purpose of clarity, trees are identified by a reference number within the Tree Survey Schedule which corresponds with the tree no. recorded within the Tree Survey & Tree Protection Plan. The tree's common name and its dimensions are recorded within the tree survey schedule together with their age, physiological, structural condition and a category code in accordance with the guidelines set out in British Standard 5837: (2012) ''.

Trees have been assessed as individuals, groups, woodlands or hedgerows where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or of similar species including biodiversity or habitat potential. An assessment of individual trees within the groups or woodlands has been made where there has been a clear need to differentiate between them for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

Where a tree's crown is heavily asymmetrical, the crown radius for each cardinal compass point is given. Together with the height, clearance between ground level and the crown, this provides a good guide to the size and outline form of the tree.
The estimated life expectancy in context of the species is provided as guidance only.

The quality and value of each tree is assessed, grading the tree to one of four categories. The purpose of the tree categorization method is to allow informed decisions to be made concerning which trees should be removed or retained should development occur.

Details of the preliminary root protection area (RPA) around each individual tree are provided within Appendix 2 and illustrated on the Tree Survey Reference Plan to assist in assessment of site layout and the likely impact of construction works proposed within the vicinity of trees to be retained.

Where the trees root morphology within the preliminary RPA may be influenced by existing site features, these areas of restrictive growth may be illustrated within the Tree Survey Reference Plan for higher grade trees ie category 'A' & 'B'. The preliminary root protection area may therefore require adjustment; this may change its shape but not reduce its area (m^2) in accordance with BS 5837 (2012). It is recommended that *tree*:fabrik be consulted and additional detailed evaluation and guidance be considered within the emerging site layout.

Key to Tree Schedule

Tree No: Relates to individual trees identified within the Tree Survey Plan

Species: Common name

Height: Estimated height expressed in metres

Stem diameter: Diameter of main trunk taken at 1.5m above ground level. Where the stem diameter is affixed by a '*' this measurement is for multi-stemmed trees.

Abbreviations: **E**: Estimated **Ave**: Average **A.G.L**: Above ground level **G.L**: Ground Level
E.S.D: Estimated Stem Diameter **A.S.D**: Average Stem Diameter

Branch Spread: Estimated crown radius expressed in metres. Where a trees crown is heavily asymmetrical the crown radius for each cardinal compass point is given.

Age Class
- **Y** **Young** - A recently planted or establishing tree that could be transplanted
- **SM** **Semi Mature** – An establishing tree which is still exhibiting apical dominance and has significant growth potential
- **EM** **Early Mature** - A tree that is reaching its ultimate potential height and losing apical dominance but has potential to increase in height, girth and crown extents
- **M** **Mature** - A tree which has lost apical dominance with limited potential for any increase in overall size
- **OM** **Over mature** - A senescent or moribund specimen
- **V** **Veteran** - a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition. These trees usually exhibit retrenchment.

Physiological Condition: **N** Normal **P** Poor **D** Dead

Category	Definition		Identification on plan
Trees for removal	U	Trees in such a condition that they cannot realistically be retained as living trees in context of the current land use for longer than 10 years.	DARK RED
Trees to be considered for retention	A	Trees of high quality and value. Trees in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	LIGHT GREEN
	B	Trees of moderate quality and value Trees in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	MID BLUE
	C	Trees of low quality and value Trees currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.	GREY

Sub-categories	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation

Root Protection area

This is the minimum Root Protection Area (RPA) recommended within British Standards 5837 2012. The RPA is an area (m2) equivalent to a circle with a specified radius. This is the minimum area in m2 which should be left undisturbed. All measurements are rounded to the nearest 0.5m.

Tree No.	Species	Ht (m)	Stem Dia (mm)	Branch spread (m)				Height of crown clr (m)	First Significant Branch	Age Class	Phys. Condition	Structural Condition	Remaining contribution (est. years)	Category grading
				N	E	S	W							
T1	Lime	14	300	5	5	4.5	5	3		EM	N	Incompatible graft point at ground level, fair form, future potential to mature.	40+	A1
T2	Lime	16	300	4.5	4.5	3.5	5	3.5		EM	N	Incompatible graft point at ground level, twin-stemmed from 3.5m a.g.l., future potential to mature.	40+	B1
T3	Lime	21	700	3.5	11	5.5	7	3.5	9(W)	M	N	Uplighter located within RPA to W, extended lateral to E, previously subject to crown reduction.	40+	A1
T4	Lime	21	640	6.8	8	3.5	7.5	3.5	9(W)	M	N	Asymmetrical crown and swept mid-stem due to group pressure, nest located within upper crown, previously subject to crown reduction.	40+	A1
T5	Lime	21	830	4	10	6.5	9	3	8(S)	M	N	Extended lateral to E (reduced) forming dog-leg branch, individual extended lateral beyond natural crown (6m) at 10m a.g.l., previously subject to crown reduction.	40+	A1
T6	Lime	12	230	3	5	5.5	2.5	3		EM	N	Distorted trunk at 5m a.g.l., fair health and condition, future potential to mature.	40+	B1
T7	Indian Bean Tree	7	250	6	4.5	5.5	6	2		SM	N	Memorial tree. Radial surface roots to S & E extending 2m from trunk, crown break at 2m a.g.l., uniform shape, fair health and condition.	40+	A1
T8	Maidenhair Tree	14	370	6	5	4	5	4	4(E)	EM	N	Incongruous species with extended individual laterals typically characteristic of species but of fair health and condition. Low branches to N, E and W.	40+	B1
T9	Maidenhair Tree	11	450	1.5	2.5	1.5	1.5	5		EM	N	Crown reduced impacting on visual amenity.	20+	C1
T10	Lime	12	320	5	4	4.5	4.5	3.5		EM	N	Within tarmac area with unstable cast iron grill, minor bark damage on S side, located 5m from building, potential to mature.	40+	B1
T11	Lime	12	340	4.5	4.5	5	4.5	4.5		EM	N	Within cobbled area, surface roots within previously constrained planting station, loose cast iron grill forming potential trip hazard, 5.5m from building, future potential to mature.	40+	B1

Tree No.	Species	Ht (m)	Stem Dia (mm)	Branch spread (m)				Height of crown clr (m)	First Significant Branch	Age Class	Phys. Condition	Structural Condition	Remaining contribution (est. years)	Category grading
				N	E	S	W							
T12	Maidenhair Tree	14	390, 370*	4.5	7.5	5.5	5.5	5		EM	N	Basal area within raised decking, twin-stemmed from 1m a.g.l. forming tight fork formation, decking becoming occluded by tree.	20+	C1
T13	Tulip Tree	5	80	1	1	1	1	2.5		Y	N	Basal area within raised decking, fair health and condition.	20+	C1

APPENDIX 2

Reference Plan

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APPENDIX 3

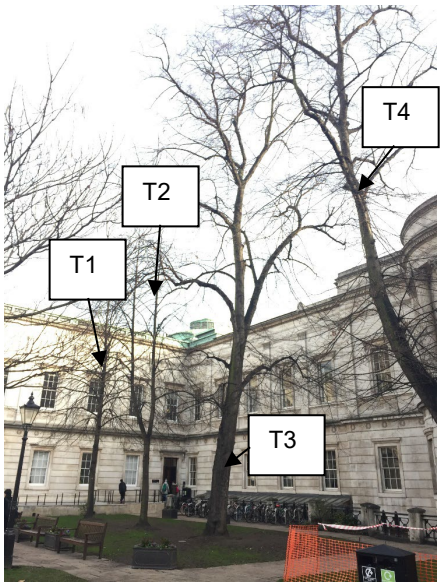
Root Protection Area

Tree No.	Species	Stem Dia (mm)	Age Class	Remaining contribution (est. years)	Category grading	Root protection	
						Radius (m)	M^2
T1	Lime	300	EM	40+	A1	3.6	40.7
T2	Lime	300	EM	40+	B1	3.6	40.7
T3	Lime	700	M	40+	A1	8.4	221.7
T4	Lime	640	M	40+	A1	7.7	185.3
T5	Lime	830	M	40+	A1	10	311.7
T6	Lime	230	EM	40+	B1	2.8	23.9
T7	Indian Bean Tree	250	SM	40+	A1	3	28.3
T8	Maidenhair Tree	370	EM	40+	B1	4.4	61.9
T9	Maidenhair Tree	450	EM	20+	C1	5.4	91.6
T10	Lime	320	EM	40+	B1	3.8	46.3
T11	Lime	340	EM	40+	B1	4.1	52.3
T12	Maidenhair Tree	390, 370*	EM	20+	C1	6.45*	131*
T13	Tulip Tree	80	Y	20+	C1	1	2.9

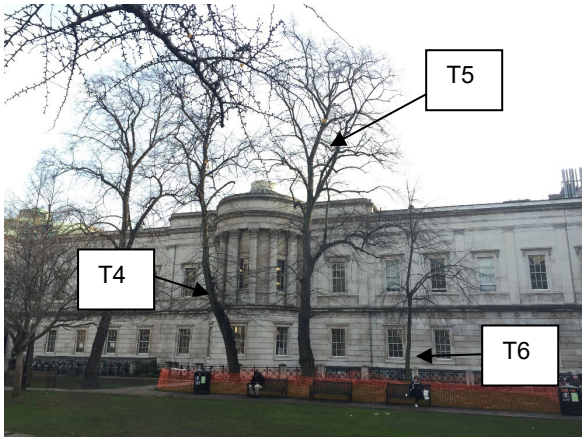
APPENDIX 4

Photographic Record

1. General view of Lime (T1, T2, T3 & T4).



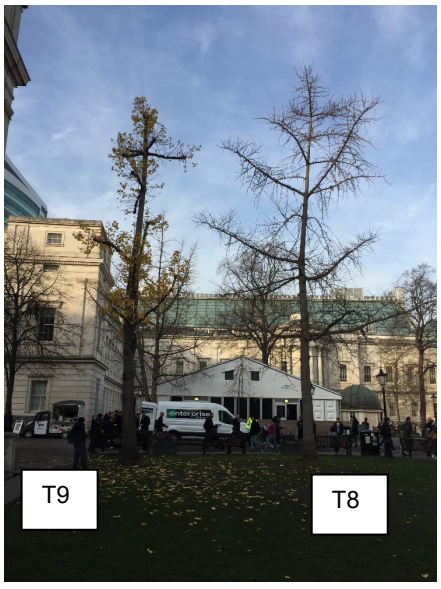
2. General view of Lime (T5, T6 & T7).



3. General view of existing crown extents of linear group of Lime (T4 to T6).

4. Detail view of distorted crown break of Lime (T6).

5. General view of Indian Bean Tree (T7).



6. General view of Maidenhair Trees (T8 & T9) with T9 displaying crown reduction.

7. General view of Lime (T10).

8. General view of Maidenhair Tree (T12) located within existing decked area and displaying a tight fork formation.

9. General view of young Tulip Tree (T13) within decked area.

APPENDIX 5

Qualifications and Experience

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Brief qualifications and experience of Alan Richardson

Qualifications: I hold the National Diploma in Arboriculture and I am a Professional Member of the Arboricultural Association.

Career experience: I started my career at the grass roots of the industry working in Britain and West Germany, obtaining experience in all aspects of practical tree care. In 1989 I joined Westminster City Council as an Arboricultural Officer, dealing with municipal tree management. This provided me with a comprehensive insight into the social, safety and contract management issues of urban tree management.

In 1991 I joined English Heritage as the Trees and Woodlands Advisor providing specialist advice on all aspects of trees, woodlands and forestry within the historic environment. During the next nine years, I developed and established national policy and strategy for tree management on the 420 historic properties under guardianship including the co-ordination, inspection and monitoring of the annual H&S inspection programme, contracts and standards and represented English Heritage on policy matters relating to trees, including liaison with other government departments on joint projects such as the Veteran Tree Initiative and the Parklands & Wood Pasture Habitat Action Plan.

As a Director of ***tree* : fabrik**, I draw on the wide range of experience obtained and specialise in supplying bespoke arboricultural planning services to Local Planning Authorities and the private sector. This includes advising on a full range of tree issues within the planning environment, providing site surveys to BS5837 (2012) 'Trees in relation to design, demolition and construction', arboricultural implication reports, method statements and supervision, development control advice to Local Planning Authorities, successful enforcement and prosecution, appeal statements and attendance at hearings, liaison with and on behalf of Local Planning Authorities, developers, architects and town planners.

This comprehensive experience and current working knowledge of Local Authorities and the private sector encourages a pragmatic approach that has been found to be of benefit to all parties.

Continuing professional development**:** I keep current on arboricultural issues and best practice through membership of the Arboricultural Association and attendance at short courses.

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