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REPORT ON INSPECTION OF LIME TREE

AT

**96 SOUTH HILL PARK
LONDON NW3**

BY

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1. EXPLANATORY SHEETS, TREE INSPECTION SHEET
2. TREE CONSTRAINTS PLAN, DRAWING NO. J43.20/01

1. INTRODUCTION

- 1.1 Broad Oak Tree Consultants Ltd. have received instructions from Smith Lam Architects Ltd. to undertake an inspection of a lime tree located at No. 96 South Hill Park, London, NW3. The purpose of the inspection was to produce a base inventory of the tree, advise on any safety issues, calculate BS root protection area and produce a Tree Constraints Plan that can be used for advising potential development layouts.
- 1.2 At the time of reporting it is understood that the tree stands in the South Hill Park Conservation Area and is covered by Tree Preservation Order No. 105, 1983.

2. TREE LOCATION

- 2.1 The lime tree is situated in the rear garden of No. 96 South Hill Park, being the left hand end of a terrace of properties that back onto a lake. The properties are built into ground that slopes down significantly from front to rear. To the immediate left of the garden is a tarmac surfaced alley leading into the park beyond. The boundary with the garden is marked by a large brick wall, within which is set an access gate to the rear garden. Growing against this brick wall within the rear garden 2.7m across from the rear wall of the building is a mature lime tree, the subject of this report.

3. DATA COLLECTION

- 3.1 The lime tree was inspected from the ground and no climbing or specialist investigations were undertaken. The lime tree was inspected to the requirements of Section 4.2.6 of BS 5837:2005 "Trees in Relation to Construction – Recommendations".
- 3.2 The tree survey includes only one tree, no. 1, lime. This tree number, together with BS recommended colour coding of condition, has been added to the Tree Constraints Plan, our drawing no. J43.20/01 in Appendix 2. This drawing also includes its crown spread based on four compass points and BS calculated root protection area.
- 3.3 The following categories of information were obtained for the tree. A separate detailed tree survey sheet is attached in Appendix 1, together with comprehensive explanatory sheets which cover the details of the categories listed below.

- (1) Tree reference number
- (2) Species
- (3) Height in metres
- (4) Stem count
- (5) Stem diameter in millimetres
- (6) Branch spread in metres
- (7) Age class
- (8) Height of crown clearance in metres
- (9) Physiological condition
- (10) Estimated remaining contribution in years
- (11) Category grading
- (12) Structural condition
- (13) Preliminary management recommendations

- 3.4 Within the assessment of physiological condition and remaining contribution, a visual inspection of the lime tree was undertaken to assess the crown and stem for any weak structures, deadwood, hollows, forks or other defects that might affect its stability and safety. The base of the tree was also visually inspected, together with tapping and probing, to search for signs of root lifting, bark death or decay.

4. RISK ASSESSMENT - INFORMATIVES

- 4.1 Although the potential risk to someone passing beneath the lime tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year round basis, such as footpaths, gardens and roadways. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of the tree could potentially cause physical damage to such structures.
- 4.2 Within the scope of any tree survey it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even healthy trees can suffer stem snap or windblow. There is also a well known propensity for mature trees to occasionally shed limbs for no discernible reason, even on calm days. Although relatively rare, limbs may occasionally be shed and this should be acknowledged as a risk that cannot entirely be mitigated.

5. RESULTS OF TREE INSPECTIONS

- 5.1 The lime tree has been classified as BS category B – retention desirable, with a useful lifespan/contribution of between 20-40 years. The tree has visual landscape amenity though is located too close to the houses for such a large growing specimen. Consequently much of its crown is developed out to the south west over the alley and adjoining rear garden.
- 5.2 Within the last two years the crown of the tree has been reduced and epicormic shoots removed from the stem and internal branch structure. Rapid regrowth has occurred from all cut points and outer shoots are close to touching walls/roofs.
- 5.3 The tree has several potentially weak compression stem unions which can represent a risk of failure, particularly where stems are leaning out with an offset centre of gravity. The recent crown reduction works will have reduced loading on the stems and regular recutting will be necessary for this reason and to avoid possible damage to roof structures. Consideration should be given to loose cable bracing the stems together at height using a “Cobra” or similar system to minimise risks of stem failures occurring.
- 5.4 A previous report prepared by CBA Trees in September 2007 refers to part of the wall adjacent to the lime tree having collapsed and been replaced with fencing and to the area around the tree being paved.
- 5.5 At the time of inspecting the lime tree the brick wall has been rebuilt, with the brickwork touching the stem. This could in future damage the stem as it continues to expand or cause further lateral pressure to the wall and damage. To the west of the tree a new gate with pillars has been built into the wall, together with a low brick built store. Around the base of the tree the ground is now loose gravel.

6. BS CALCULATED ROOT PROTECTION AREAS (RPAs)

- 6.1 The table below has been calculated using the measured stem diameter and the formula in Table 2 "Calculating the RPA" in BS 5837:2005. This is represented as a basic circle on the Tree Constraints Plan. Where buildings, walls, services and hard surfacing exist within the indicated RPA it is likely that the architecture of the root system will have been affected. Foundations to walls and buildings can completely obstruct root development, depending on their depth and the nature of the underlying soils. In the absence of detailed site investigations the indicated RPA circle should be used for guidance only within any redevelopment proposals.

Tree no.	Species	BS Category	BS calc. radial equiv. root protection area (m.)	BS calc. total RPA (m ²)
1	Lime	B	7.2	162.9

7. SUMMARY

- 7.1 The lime tree is in reasonable health and growth response to recent tree surgery is good. There are structural weaknesses in stem joints and regular pruning and/or loose cable bracing of stems at height will be required.
- 7.2 The Constraints Plan provides guidance on the potential rooting area of the tree though existing constraints means that much of the rooting area may have extended into the open garden to the west. Any open areas of ground around the building footprint and within the rear garden will be important areas to protect within any potential redevelopment if the tree is to be safely retained.

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APPENDIX 1

TREE SURVEY EXPLANATORY SHEET

Height	in metres (estimated where ground uneven or access restricted).
Stem count	number of stems
Stem diameter (ARF)	in mm. at 1.5m. above ground level. Above Root Flare – diameter of multi-stemmed trees measured at this level.
Branch spread	radial spread in metres at four main compass points (estimated where no access).
Age class	Young - Y Middle aged - MA Mature - M Over mature - OM Veteran - V
Height of crown clearance	in metres. Normally range of heights of outer branches above ground level, e.g. 2-4m.
Physiological condition	Good, Fair, Poor, Dead
Estimated remaining contribution	in years e.g. less than 10, 10-20, 20-40, 40+
Category grading	see attached sheet
Structural condition	comment on presence of defects, decay, crown form, past management, deadwood, other features worthy of note. N.B. If trees are ivy clad, no full structural assessment will have been possible.
Preliminary management recommendations	requirements of further investigations, works necessary to alleviate potential hazards based on current setting and levels of access. NB: Works that may be necessary in relation to development are not included here

CASCADE CHART FOR TREE QUALITY ASSESSMENT

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	<ul style="list-style-type: none">Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality <p>NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)</p>			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria - Subcategories			Identification on plan
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodland, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those of low quality and value: 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.	Trees not qualifying in higher categories	Trees present in groups or woodland, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

Tree ref. no.	Species	Height (m.)	Stem count	Stem diameter (mm.)	Branch spread (m.)				Age class	Ht. of crown clearance (m.)	Physiological condition	Estimated remaining contribution (years)	Category grading		Structural condition	Preliminary management recommendations
					N	E	S	W								
1	Lime	14	1	600	3.5	2	5	5	M	2+	Fair	20-40	B	1	Twin stemmed at 2.6m with weak compression join. Becomes four stems at c.4.5-5m with weak unions. Main crown structure to W. Crown reduced in past two years with vigorous regrowth. Epicormic shoots on lower stem from 2m to 6m and up into main branch structure	Consider cable bracing stems together at height

APPENDIX 2

TREE CONSTRAINTS PLAN

T1 Tree number

BS Category of Condition

BS Condition A

BS Condition B

BS Condition C

BS Condition R

Good crown spread

BS Calculated root protection areas

T1

Actual rooting zone likely to be constrained by wall and building foundations and possible extension of area into open garden to west.

