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Consultancy

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Tree Survey and Tree Constraints Plan

A Tree Survey and Report for purposes of Site Development, including a Tree Constraints Plan

British Museum
Great Russell Street,
London WC1B 3DG

Ref No: 210911

Client:	Zoe Palphramand Client Project Manager The British Museum Great Russell Street, London WC1B 3DG
Date instructed:	14th September 2021
Instructed by:	Zoe Palphramand Client Project Manager The British Museum
Visited by:	O R Booth & C Jones
Date of Visit:	15.09. 21
Documents referenced	Drawing number 201B dated 13.04.21 Proposed Hirayama Studio Plans Visual Tree Assessment report dated 14th August 2020. BS5837 Tree Survey ref 210342 dated 04.05.21.
Prepared by:	O R Booth
Date completed:	28.09.21

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ATTACHMENTS
Tree Constraints Plan

1: Introduction

1.1 Instruction:

Writtle Forest Consultancy Ltd has been instructed by Zoe Palphramand to carry out a tree survey included with a contextual report, on specified trees located within and immediately adjacent to the area of land identified as the British Museum.

1.2 Aspects dealt with within report:

The Tree Survey included within this report categorises and evaluates trees to identify those suitable for retention. The Tree Survey list, details species name, dimensions of the trees, observations of the structural and physiological condition and categorizes the trees as to their retention value.
The survey is based on the Visual Tree Assessment (VTA) method developed by Mattheck and Breloer (1994); it is preliminary in nature and should not be interpreted as a detailed tree condition inspection. Works are recommended to those trees that present an immediate and serious hazard to life or property, or maybe affected by a pest or pathogen that may spread to other trees on the site.
This report also contains a Tree Constraints Plan (TCP) showing the position of the trees and the root protection area (RPA).
Consideration of Modified RPA is made once knowledge of proposed development/ works are known unless otherwise specified. Considerations of light obstructions can be made if so requested.

1.3 Aspects not dealt with within report (Please also refer to Appendix 4).

The Tree Survey does not include recommendations on the future management of the trees. Neither do the works recommended, consider works that may be required prior to development or to facilitate access to the site. This report does not include an Arboricultural Implication Assessment (AIA), an Arboricultural Method Statement (AMS), or Tree Protection Plan (TPP).
The report and survey does not deal with issues relating to Subsidence or Heave, either as a result of retention or removal of trees. Neither does the report or survey consider the water demands of the trees present to enable decisions as to foundation type and depth. This can be done if so required.

2: Site Details

2.1 Description and General Aspects of the Site

The trees surveyed relate to those trees near and adjacent to the area to be developed to the east of the main building, the Hirayama Studio. Some trees lie within the bounds of the site whilst other trees are within rear gardens of neighbouring properties. The primary area of concern in relation to the trees lies to the north of the Conservation Studio and is related to water ingress into this area of the build.

2.2 Previous relevant surveys and site history

I have read a VTA report produced 14.08.20. A BS 5837 Tree survey was also conducted in April 2021 in relation to another potential development project. I am not aware of any further reports or of any historical or cultural values relating directly to the trees considered in this report.

2.3 Tree Preservation Orders (TPO) and Conservation Areas (CA)

As of email correspondence with London Borough of Camden Planning department (21.04.21), it is understood that all of the trees surveyed fall within The Bloomsbury Conservation Area. To this end any works to or relating to the trees will require notification to LBC, with allowance of 6 weeks to respond before such time as works can commence. (It is understood that the closest TPOs to the British Museum are at the front of 29A Montague Street).

3: Trees Considered within the Survey

3.1 Identification and location of the trees

The locations of the trees are illustrated on the attached Tree Constraints Plan. The locations of the trees surveyed are based on the provided Topographical Survey drawing. Trees not included on the provided Topographical Survey have been plotted using a laser distometer measured from fixed datum points. Whilst this method does not provide the accuracy of a Topographical Survey it is considered adequate for the consideration of Root Protection Areas. A scale is used for the purpose of plotting the RPA, it is not recommended that this scale is used for any further measurements.
Where deemed appropriate trees have been considered as a group.

3.2 Trees included in the Survey

Trees included are those present at the time of the survey, with a stem diameter greater than 75mm at 1.5m from ground level.
Also included are those trees on adjacent land which are within a distance equal to 12 times their stem diameter from the boundary, where the tree is identified/ observed. Such trees will be surveyed only from within the confines of the boundary of the site considered unless prior consent is obtained to inspect these trees.

3.3 Categorization and Data collection

Trees are categorized in accordance with the cascade chart given as Table 1 in B.S.5837, a copy of this chart is included within Appendix 2.
Data collected within the survey is explained within Appendix 1. This data is collected considering the guidelines given within B.S.5837:2012.

4: Composition of the Tree Constraints Plan

4.1 The Aim of the Tree Constraints Plan (TCP)

The Tree Survey enables the development of a Tree Constraints Plan (TCP). The TCP shows the influence that the trees on and adjacent to the site will have on a site development layout/ proposed works and to inform areas that can be developed.
Where a site development has already been outlined the trees are none-the-less evaluated independently of the proposed development.

4.2 What is included in the TCP

The plan identifies the Root Protection Area (RPA). This is the minimum area (in metres squared) which should be left undisturbed around each retained tree.

The RPA in this instance is modified to reflect the most likely morphology of the root system given the below ground conditions and infrastructure where known.
In this instance the root morphology is considered to be limited in spread below the footings and construction of adjacent buildings. However, such below ground structures are not viewed as distinct barriers and roots are assumed to have grown below foundation levels. This morphology is considered for the prominent trees only. It is represented on the TCP with a pink line.
The report does not consider in this instance a consideration of the growth potential of the trees or possible effects of obstruction of daylight to the building.

5: Recommendations and Considerations

5.1 Recommendations

It is recommended that the Tree Survey Report and Tree Constraints plan is used by the architects/ designers to inform the proposed development. In the first instance, the design should avoid the requirement for any excavations within the Root Protection Areas (RPA) of all retained trees. However, if encroachment within the RPA cannot be avoided, it may be possible to mitigate with appropriate technical engineering, tree protection methods and procedures.
Other work operations have the potential to cause damage to trees, both above and below ground, including but not limited to; raising of soil levels, compaction of soil, exposure of roots, changes in hydrology, pollution, direct damage by contractors and vehicles and chemical damage.

5.2 Further considerations

An Arboricultural Implications Assessment (AIA) will take into account issues relating to tree preservation orders, conservation area protection as well as the effect on the amenity value of the trees.
The assessment will further take into account issues relating to the TCP and deal with issues relating to the proposed design and layout of the site. This in turn will affect possible relevant tree work proposals, new tree planting,
The Arboricultural Method Statement (AMS) is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is generally drawn up along with a Tree Protection Plan (TPP) after the layout proposals have been finalised. The TPP outlines trees to be retained, removed, location of barriers and type of barrier to be installed.
The AMS will take into consideration construction operations undertaken in the vicinity of the trees. It will deal with such issues as site access, intensity of construction activity, space needed for works, location of materials and location of service runs.

Appendix 1: Tree Survey - Explanation of category headings

Tree No	The tree number as given to the tree or group of trees as shown on the site plan. The plotting of these trees are approximations.
Species	This is the general common usage name given to the tree. The Latin genus is sometimes given as clarification where deemed necessary.
Height	This is an approximate figure given in metres. Measurements are taken using a digital clinometer.
Stem Diameter	The measurement is given in millimetres using a standard girth tape. This is an approximate measurement of the diameter of the trunk at a height of 1.5m from ground level.
Crown Spread	This is an approximate figure given in metres where 'm' denotes metres. It is an approximate measurement of the radial crown spread to north, east, south and west.
Height of crown clearance	This is the height in metres of the crown clearance above adjacent ground level. This measurement pertains to information on ground clearance for access and shading.
Height to first major limb	This is the height in metres to the first major limb that would not normally be removed as a consequence of crown lifting works. The orientation of this limb is also recorded (N=North, E=East, S=South, W=West, All=To all points).
Age Class	The following abbreviations are used to give the age of the tree; Y= Young trees aged less than one third of life expectancy. SM= Semi mature, approx. one third of life expectancy. EM = Early mature tree trees between one to two thirds of life expectancy. M = Mature tree over two thirds of life expectancy. OM= Over mature trees exceeding life expectancy.
Physiological Condition	The following considerations are used to evaluate the physiological condition of the tree (foliage and vitality): Good, Fair, Poor, Dead, with intermediate descriptions using the same phrasing.
Structural Condition and Observations	These are observations and comments on the visible structural condition of the tree on the day of the survey. They are brief and relate to unaided observations from the ground, unless otherwise stated. These observations are made to categorise the tree and they do not replace a more comprehensive condition survey.
Preliminary Management Recommendations:	These are initial recommendations including the following; highlighting the need for more detailed inspections, those trees that present an immediate hazard to life or property. The tree works recommended do not consider general or required management of the trees. Similarly, the works outlined do not consider works that may be required prior to development works or to facilitate access to the site.
Estimated remaining contribution of the tree	This is the number of years that the tree will contribute to the landscape. The following bands are used: Less than 10 years, 10+ years, 20+ years and 40+ years.
Category grading:	This is the categorisation for trees following a tree quality assessment. Trees are categorized in accordance with the cascade chart given as Table 1 in B.S.5837. A copy of this chart is included within Appendix 2.

A red asterisk * denotes that the category grade as given may be dependent upon information gained from further inspection of the tree.
A green asterisk * denotes that the data collected was as of April 2021.

Appendix 2: B.S. 5837 Table of Tree Categorisation

TREES TO BE CONSIDERED FOR REMOVAL				
CATEGORY AND DEFINITION	**CRITERIA**			Identification on plan
Category U 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	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 U 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 NOTE Habitat reinstatement may be appropriate (e.g. U category tree used as a bat roost: installation of bat box in nearby tree).			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 woodlands, 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 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, 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 150 mm should be considered for relocation.			

Appendix 3: Tree Survey Details

Tree Ref. No:	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Ht. of crown clear. (m)	Ht. to first major limb (m)	Age	Phys. Con.	Structural condition and observations	Preliminary Management Recommendations	Est. Remain Con.	Cat. grade	RPA radius (m)	RPA (m^2)
				N	E	S	W										
T16	London Plane*	26m	1195	9	9	5	6	5m	7m west	M	Fair /Good	Third party tree but accessed to inspect. Deadwood stub at 14m to east, assumed result of failure due to Massaria. Ground level difference of approx. 1.5m	No work presently required.	40+	A1	14.3	642.5
T17	London Plane*	26m	1495	7	7	13	6	5m	7m north	M/ Vet	Fair /Good	Third party tree but accessed to inspect. Cavity to base of buttress root to south east. Not currently significant. Ivy encroachment recently severed but remaining on stem. Nest in crown to south at approx. 14m. Ground level difference of approx. 1.5m. (Note: RPA calculated as of Veteran tree).	No work presently required.	40+	A1	22.4	1576.5
T18	London Plane*	12m	200	3	3	3	3	4m	N/A	SM	Good	Third party tree, no access, all measurements estimated. Ground level difference of approx. 1m	No work presently required.	40+	B1*	2.4	18.1
T19	Lime	16m	400	4	4	4	4	3m	3m east	EM	Fair	Historically reduced back from build. Heavy epicormic growth. Ground level difference of approx. 1m	No work presently required.	40+	B1	4.8	72.4

Tree Ref. No:	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Ht. of crown clear. (m)	Ht. to first major limb (m)	Age	Phys. Con.	Structural condition and observations	Preliminary Management Recommendations	Est. Remain Con.	Cat. grade	RPA radius (m)	RPA (m^2)
				N	E	S	W										
T20	Ash	18m	520	2	5	5	6	5m	N/A	EM	Poor/ Fair	Tree growing within planter area, directly adjacent to wall. Inonotus sp. bracket on ground by tree and on stem at 6m to the south. Sounding hammer resonates potential hollowing to stem. Tree is subject to a separate report ref. 210912a Condition report	Pollard at 8m Or Fell	Less than 10 yrs	U	6.2	120.8
T21	Robinia	18m	520	6	6	6	7	2m	7m north	EM	Poor	Tree is subject to a separate report ref. 210912b Condition report	Fell	Less than 10 yrs	U	6.2	120.8
T22	Robinia	18m	520	5	7.5	5	3.5	2m	6m north	EM	Fair to Good	Unbalanced crown due to proximity of T21, remedied with minor tree works. Bird nest at 8m to East.	No work presently required.	40+	B1	6.2	120.8
T23	Holm Oak	5m	75	1	1	1	1	0m	n/a	Y	Good	Very young tree, badly sited within the gardens due to proximity to build and inadequate room for development.	No work presently required.	40+	C1	0.9	2.5

Appendix 4: Limitations of Tree Report

Limitations of the Tree Survey and Scope of the Report

Please also refer to sections 1.2 and 1.3 at the beginning of this report.
The survey was based on unaided, visual observations made from ground level only.
No climbing inspection or below ground inspections were carried out at the time of the survey.
The survey preliminary in nature and should not be interpreted as a detailed tree condition inspection.
All observations were made from within the boundaries of the property, or from public land unless otherwise stated. Trees within neighbouring property are inspected as closely as is reasonably possible from within the boundaries of the property or from public land.
The report only details trees and vegetation as identified in the instructions and/or outlined within section 3 of this report.
This report does not consider the possible implications to any present or future built structures. This is outlined within section 5 of this report and will be dealt with by further reports as deemed necessary/ as and when instructed by the client.

Findings of the Survey and the Report

Validity, accuracy and findings of the report will directly relate to the accuracy of information provided at the time of the survey.
No checking of independent data or documentation provided will be undertaken.

Timing of the Survey and the Report

The considerations/ findings in this tree report and tree survey are valid for one year.
Such considerations/ findings will become invalid if any building works are undertaken, soil levels are altered or tree work undertaken.
If there are any alterations to either the property or soil levels, or if tree works are carried out, it is recommended that a new tree survey/report is undertaken.

Trees in relation to other Properties

This report/survey only considers the trees in relation to the site as identified.
It does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed.
Neighbouring owners of trees that are identified as posing a possible risk to the property/site in question should seek their own advice as to possible effects of the recommendations given within this report.
Damage to, or possibility of damage to, any other structure that is not referred to within the report is not considered unless otherwise specified. This includes both neighbouring structures and any other structure on the property.

Trees in Relation to Subsidence, Heave and Direct damage

This report does not deal with issues relating to subsidence or heave in relation to any built structures and surrounding vegetation. However, it may be prudent to consider the effects of heave on any property if trees are removed.
Similarly, the issue of direct damage (when the roots of a tree have physical contact with a structure) is not considered within this report.

Trees subject to statutory controls

It has not been established whether or not any of the trees mentioned within the report are covered by any statutory controls. This can be done if requested.
If the trees are covered by a Tree Preservation Order or are located in a conservation area it will be necessary to consult the local authority before any pruning works, other than certain exemptions, can be carried out.
The works specified above are necessary for reasonable management and should be acceptable to the local authority. However, tree owners should appreciate that the local authority may take an alternative point of view and have the option to refuse consent.

Trees are subject to changes outside man's control

Trees are living organisms subject to changes outside man's control. Trees and environment alter with the seasons it is as well to inspect trees whilst in full leaf and when out of leaf.
If there are any harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees.
Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of man's influence and other factors may be involved.
Such considerations/ findings will become invalid if any building works are undertaken, soil levels are altered or tree work undertaken.

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