J.L.Denney
TREE CONSULTANT

Preliminary Arboricultural Impact Assessment and Arboricultural Method Statement

for

Land at Grays Inn Road, London.

28/06/2019

Jessica Denney

Dip Arb L3

TechArborA

Executive Summary

On 14/06/2019 an arboricultural survey was carried out and this report has been prepared accordingly to accompany a planning application and the tree information which can be assessed, assess the implications, and provide adequate protection to the trees on site.

Information within the report pursues to be in accordance with BS 5837:2012, Trees in relation to design, demolition and construction. The purpose of the report being to assess the information in regards to the proposed redevelopment of the existing buildings.

There are two standard trees and one group that are of focus in the report. All trees have been assessed to be of fair quality. This is per the categories set in BS 5837:2012.

One tree requires removal to permit development.

Demolition (in this case the removal of hard surfaces) should be undertaken by hand and under supervision where it affects the RPA of retained trees.

If the recommendations set out in the report are adhered to, the development should not cause complications in arboricultural terms.

Contents

1.0 Introduction

1.1 Directive

On the 17/05/2019, Groveworld provided formal instruction to conduct an arboricultural survey with complementing Arboricultural Impact Assessment and Tree Protection Plan (TPP) for the development and construction process for the Land at Grays Inn Road.

This report has been produced in accordance with the principles set in *BS 5837:2012 Trees in relation to design, demolition and construction- Recommendations* and *BS3998:2010 Tree work- Recommendations*. The following information is provided to accompany the planning application:

- Details of significant trees on the site affected by construction activity with corresponding categorisation
- A plan produced to show tree survey information and Root Protection Areas (RPA- see appendix 2)
- A tree protection plan which should be followed during works and development
- A suitable arboricultural impact assessment
- A tree works schedule in accordance with development

1.2 The Proposals

Redevelopment works comprising of residential, office and apart-hotel uses.

1.3 Report Purpose

The purpose of this report is to show the Local Planning Authority (LPA) the tree information which can be assessed in conjunction with the planning application.

The report covers trees directly on the site and any that could possibly be affected by the development. The main concerns of the report are the impact development could have on trees and how the trees could affect development. An arboricultural impact assessment has been made based on any works close to the trees but RPAs have been calculated along with methods of work in these circumstances. A revised tree protection plan may need to be produced at the technical design stage after consent has been given.

The report covers two trees two groups on site. These trees have been identified as the most likely to be affected by proposals and construction activity. This report and the TPP should be used for arboricultural issues only.

1.4 Legal Constraints

The council have stated that at the time of writing this report no trees on site are protected by a Tree Preservation Order. However, the site does fall within a conservation area. Therefore, it will be necessary to seek permission before proceeding with any trees works. The council require six-weeks' notice or five days' notice for any trees which are believed to be dangerous and an immediate threat to the public. It is a criminal offence to cut down, top, lop, uproot, wilfully damage or wilfully destroy a protected tree.

RE: Tree Preservation Order Enquiry

CR **Curry, Rav <Rav.Curry@camden.gov.uk>**
27/06/2019 09:37

To: Jess Denney

Hi Jess

There are no TPOs at this location, however the location and the properties around it do fall within the King's Cross/St. Pancras Conservation Area.

All the trees therefore benefit from default protection and any works to trees can only take place by submitting an application to the Local Authority.

This can be done by visiting the Planning Portal at www.planningportal.co.uk and submitting an Application for Tree Works at a zero fee.

I hope this helps to answer your enquiry.
Kind regards

Rav Curry
Planning Assistant
London Borough of Camden

1.5 Tree Work Recommendations

The tree schedule following the survey can be found in Appendix 3. Two items require intervention irrespective of development within six months. One tree requires urgent attention and it is important that the recommendations are communicated with the owner of the tree as soon as possible as the tree could cause a risk to the public and/or property. Full works are detailed in the tree schedule.

1.6 Other Information

- Important documents provided
  - Existing site plan- RNTNE- Ground Floor Plan Rev 1
  - Proposed site plan- GA PLAN: GROUND FLOOR WICKLOW ST (indicative)

- Contacts and references
  - Mr Nick Morris- Groveworld.- nmorris@groveworld.co.uk
  - Camden London Borough Council- Trees Officer

- Methodology of the survey
  This can be found in Appendix 1.

2.0 Site Visit

2.1 Visit

The visit to the site was undertaken on 14/06/2019 by Jessica Denney. Weather on the day was clear.

2.2 Description

The site is currently occupied by the Royal National Throat, Nose and Ear Hospital and is frequently used by the public.

2.3 Survey

A total of two trees and one group were surveyed as part of the inspection. These have been numbered T1-T2 and G1. The trees have been plotted using an existing site plan with tree locations. Some trees have been plotted using aerial imagery as not all trees were covered by the existing site plan.

A detailed assessment of each tree and appropriate recommended works can be found in appendix 3.

It is recommended that trees are surveyed at least on a yearly basis to assess any changes which could harm the public or property.

3.0 Arboricultural Impact Assessment

3.1 Proposal

It is intended to undertake redevelopment of the existing site. The redevelopment will comprise of residential, office and apart-hotel use.

3.2 Access

Site access will not affect the theoretical RPA of trees to be retained. Therefore, it will not be necessary to install temporary ground protection to protect the RPA of retained trees.

3.3 Tree Removal

One tree requires removal to permit the development- T2. This tree conflicts with the new residential section of the development.

3.4 Intrusion to Root Protection Areas

3.41 Construction of new foundations and installation of new hard surfacing does not encroach the RPA of any trees to be retained. This obviates the need for specialist construction techniques at these locations.

3.5 Demolition

Demolition within the RPA of any retained trees should be undertaken by hand tools or lightweight machinery under arboricultural supervision. This should only take place once necessary fencing and ground protection is in place.

3.6 Retained Trees Protection

Details of tree protection can be found in Appendices 6 and 7. Barriers and guards should be erected before the commencement of works and demolition. They should stay in place for as long as development takes.

Large tree guards should be placed around the retained trees to ensure no damage is caused from development or vehicles. Parking spaces should be allocated well away from the standard trees. More details can be found in the arboricultural method statement.

Barriers around the trees must be fit for purpose and safe for the public. This should be in accordance with BS 5837:2012 unless the LPA decides to issue a different method or specification.

Details of fencing can be seen detailed on the accompanying Arboricultural Impact Assessment drawing.

Above ground protection may be necessary where fencing is not suitable. This will protect RPAs from construction activity. Further details can be seen in Appendix 6.

3.7 Levels and Services

It is understood that changes to levels will not occur within the RPA or crown spread of any trees to be retained.

3.8 Site Compound

The site provides adequate space for storage of materials and a site compound outside the RPA and crown spreads of trees to be retained.

3.9 Site Monitoring, Management, and Remedial Works

Scheduled work that could potentially harm the RPA of a tree should be strictly supervised and any findings should be reported to the client and LPA accordingly. This can be seen in 6.3 of BS 5837:2012. The development should be regularly monitored by a competent Arboriculturalist at critical stages of development.

4.0 Arboricultural Method Statement

4.1 Introduction

Following planning consent, a detailed method statement may be required. This will be completed at the design stage. This section shows where works could affect trees requiring special methods or materials and how to reduce impact to trees. This section also details how trees can be protected during the development and after.

4.2 Site Preparation

a. Tree protection is a priority. This should be done before works commence. Tree protection barriers and ground protection should be put in place. Any ground vegetation and debris should be cleared. Hand tools should only be used for this.

b. Access to the site should be established including vehicular access and parking. This should be done away from any RPA boundaries.

c. Any chemicals and equipment washes should be outside the RPA boundaries and above ground level.

d. Ground protection must be established to prevent soil compaction.

4.3 Tree Surgery

If trees are removed according to recommendations, the stumps must be removed using machinery that minimises any damage to roots.
Chemical application and poisoning should be undertaken by professionals and competent people in accordance with instructions set by the manufacturer.

4.4 Remedial Works

Should further issues arise regarding retained trees and development, the main Arboriculturalist must be contacted in this regard to find a solution to any issues that all parties agree to.

4.5 Tree Protection Zones

Fencing around the trees must be fit for purpose and safe for the public. This should be in accordance with BS 5837:2012 unless the LPA decides to issue a different method or specification.

4.6 Hard Surfacing the Car Park and Machinery

Development within the RPAs must have a minimum impact on soil and roots to allow adequate water and air through the soil. Cellular confinement systems may be acceptable here as they use a porous sub-base. Development may require heavy machinery, strong evidence is needed to prove that it will not cause harm to the crowns on retained trees. Also, some landscaping may cause damage to the RPAs of trees.

4.7 Site Monitoring and Management

Before any works are undertaken. A site meeting between the project manager and Arboriculturalist will be held to discuss any protection measures and a schedule of works will be produced. Supervision arrangements can then be made accordingly.

The main contractor and site manager should be fully aware of the details of the report and should know what impact the works will have on trees and how to minimise them.
A meeting shall be held to discuss supervision including work within RPAs, tree protection barriers, and ground protection.
Supervision will allow monitoring of works to see if they comply with arboricultural conditions and be able to give advice on tree problems. Site visits will result in reports to show the LPA the progress of development as well as identify any remedial works required.

Contact Details

- Site manager
- LPA tree officer
- Arboriculturalist
- Project manager
- Other relevance

5.0 Conclusions

5.1 One tree requires removal to permit development and one tree requires removal for health and safety reasons.

5.2 The remaining trees will be retained as they have great amenity value and are visible throughout the surrounding area.

5.3 The trees will have barriers and fencing around them whilst development takes place. Ground protection may be necessary to further protect RPAs.

5.4 The trees should be monitored during development with suitable contingencies planned to any potential problems that may arise

5.5 Following this reports guidelines and protection methods will result in minimal impact to the trees.

6.0 Recommendations

6.1 It may be necessary to produce a full and detailed arboricultural method statement following receipt of planning consent. This will be undertaken with the assistance of the design team to ensure all works have minimal impact on the retained trees.

6.2 The arboricultural method statement should be followed closely at all stages of development and supervised at suitable stages. Copies should be available on site and for operatives.

6.3 Before works begin, the trees must have adequate protection, including barrier and ground protection

6.4 Measures outlined in this report should provide retained trees with the highest protection during development and construction.

Appendix 1

Survey information

1.0 Methodology

All trees were surveyed from ground level with a detailed investigation as possible. Dimensions are as accurate as possible but some estimations have been made where other factors (such as ivy, accessibility due to buildings and walls) may have hindered inspection. BS 5837:2012 4.4.2.5 recommends information that can be collected and included is species, height, diameter, crown spread, age class, physiological condition, estimated years remaining, BS category (U, A, B, or C to show suitability as a constraint to development), crown clearance, and structural condition.

2.0 Documents

Some documents were received to aid the survey as well as other information. These were a copy of the Tree Preservation Orders in place, suitable maps, and plans for the site.

3.0 References

British Standards Institution (2012) BS 5837: Trees in relation to design, demolition and construction – Recommendations;

British Standards Institution (2010) BS 3998: Tree Work- Recommendations

Appendix 2

Key to survey results

Terms

T: Tree

G: Group of trees

RPA: Root Protection Area (minimum area surrounding the tree which contains sufficient roots. BS 5837 says that the RPA may be changed in shape due to site factors, species, and root condition. Calculated by multiplying the diameter in millimetres by 12/1000. Value is then squared and multiplied by pi to give the estimated RPA. Note- this is typically used for single stem trees.

Age Class

- Y: Young, establishing tree that can easily be transplanted
- SM: Semi-mature, established tree yet to reach its ultimate height and spread with much room for growth
- EM: Early Mature, a tree still reaching the ultimate height but will still increase in diameter and crown spread
- M: Mature, limited potential for increase in size but has a safe life expectancy
- OM: Over Mature, a tree with limited life expectancy
- V: Veteran, older than typical for species and has great ecological, cultural, or aesthetic value.

Visual Amenity: The impact the tree has to the surrounding area, including its contribution to the street scene and the impact of losing the tree.

Est. Years: Expected years left of contribution

BS Cat.: in accordance with 4.5 of BS 5837

U: Unsuitable for retention, not realistically retained for more than 10 years. Can serve as conservation value in some cases

A: High quality with 40 years life expectancy remaining

B: Moderate quality with 20 years life expectancy remaining

C: Low quality with 10 years life expectancy remaining

These categories are then given a number either 1, 2, or 3.

1: Arboricultural values

2: Landscape values

3: Cultural values

Crown Clearance: the height of the first main branch above ground level, or in some cases height of canopy above ground level.

Recommendations: based on findings at the time of the survey. Cannot be based on development proposal and do not reflect change of land use.

Priority:

1. Works which require urgent intervention
2. Works required within six months
3. Works required within a year
4. Works not required at present

Appendix 3

Tree Survey Results*

Job No. Q0519034 SITE: Grays Inn Road Surveyor: Jess Denney
Date: 14/06/2019 Client: Groveworld Weather: Clear

Tree no.	Tree Species	Tree Height (M)	Stem Diameter at 1.5m	Crown Spread (M)				Age Class	Visual Amenity	Ground Cover	Crown Clearance (M)	BS Category	Comments	Est. Life Expectancy	Recommendations	Work Priority
				N	E	S	W									
1	*Platanus x acerifolia* London Plane	15	410	5	6	5.5	5	SM	High	Tarmac	2-4m	U	Street tree, has caused some damage to the pavement surrounding the base of the tree. Tree has a very large strip of necrotic bark on the SW aspect of the stem which is approximately 1.5m long. There is a fungal fruiting body here which appears to be *Meripilus sp.* but is high up the stem. Tree is a previous pollard and should be repollarded. Dense crown with some deadwood. this tree is not considered a long term specimen for the site and as such should be felled for health and safety reasons as is clearly decaying and replaced with a suitable specimen. This information should be related to the owner as soon as possible.	<10 years	Fell and replace, remove major deadwood	1
2	*Juglans regia* English Walnut	11	570	6	7	7	7	M	Moderate	Grass	0-2m	B1	Tree is located within the middle of a grassed area. Stem bifurcates at approximately 1.5m. The tree has a large stem with historic occluded wounds at the base of the stem. There is a large wound at the base of the stem. The tree has long lateral limbs and cavities in the crown which show some decay. However, this is typical for a tree of this species. There are extended limbs which overhang offsite. The crown is sparse in some places and is experiencing some dieback, however the cause of this is unknown as there is no fungal evidence. Some estimates have been made over the wall. Deadwood in the crown and some hanging deadwood. There are approximately 5+ cavities in the crown from old pruning wounds and are currently decaying. This should be monitored. A historic reduction over the southern aspect has caused a contorted form. The top of the crown is particularly sparse. No significant indicators of decay or disease at the time of survey. Tree has been awarded a low B category, however due to the sparse crown, the longevity is unclear.	10+ years	Remove major deadwood and hanging deadwood. Monitor sparse crown	2
G1	*Platanus x acerifolia* London Plane	18	400	3	3	7	7	SM	High	Tarmac	2-4m	B2	Two trees located on street. Presumed not under applicants control. The crown is asymmetric with weight biased to the SE aspect. Crowns overhang the road so therefore deadwood should be removed. Wounds present from poor pruning, trees have historic reduction evidence. No significant indicators of decay or disease at time of survey.	20+ years	Remove major deadwood.	2

*Measurements are as accurate as possible with the equipment used but some measurements may be estimated. Measurements are accurate to time of survey. Information collected is in accordance with recommendations in subsection 4.4.2.5 of BS 5837 and includes species, height, diameter, crown spread, crown clearance, age class, physiological condition, structural condition and remaining contribution. Each tree was then allocated one of four categories (U, A, B or C) to reflect its value to the surroundings.

All recommended tree works are to comply with BS 3998:2010 Tree Work- Recommendations or the industry best practice. Some products from tree works are recommended to be left on site where possible to serve as wildlife habitat and ecological features.

Appendix 4

Tree Location Plan and Tree Protection Plan

See drawings adjoined separately

- **Tree Root protection Areas**
- **Proposed construction**
- **Arboricultural implications**

Grays Inn Road Arboricultural Impact Assessment

Category Definitions (BS 5837:2012)

Trees considered for retention

Category A- Trees assessed as high quality and an estimated remaining life expectancy of at least 40 years.

Category B- Trees assessed as moderate quality and an estimated remaining life expectancy of at least 20 years.

Category C- Trees assessed as low quality and an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter lower than 150mm.

Trees considered unsuitable for retention

Category U- Trees in a condition assessed as unrealistically retainable in the context of the current land use for longer than 10 years.

Drawing is based on: 18116- GA PLAN: GROUND FLOOR WICKLOW ST (Indicative) and exisiting site plans

Legend

	Theoretical Root Protection Area (RPA) calculated using the guidelines set in BS 5837:2012. (It should be noted that factors such as existing hard surfacing, buildings, slopes and walls may affect the RPA.) It is advised that development takes place outside of the RPA.
	Existing Category B Tree
	Tree which requires felling to permit development
	Existing U category tree which requires felling and replacing. This should be liased with the owner of the tree as soon as possible
	Proposed protective barrier BS 5837:2012. (Ground protection mats can be used where fencing is not feasible.)

An up to date topographical survey was not provided for tree locations. Therefore locations have been estimated as accurately as possible using aerial imagery and should not be taken as exact

J.L.Denney
TREE CONSULTANT

137 Friday Wood Green
Colchester
CO2 8XF
07544 719564
jessica.denney1@ntlworld.com

Site: Land at Grays Inn Road

Client: Groveworld

Drawing no. 0519034/AIA

Scale: 1:100 @ A1

Date: June 19

Surveyor	Survey Date	Drawn By
JD	14/06/2019	JD

Proposed new landscaping areas

Appendix 5

Tree Surgery Schedule

Tree No.	Category	Works	Reason
2	B	Fell to permit development	Conflicts with new building.

Appendix 6

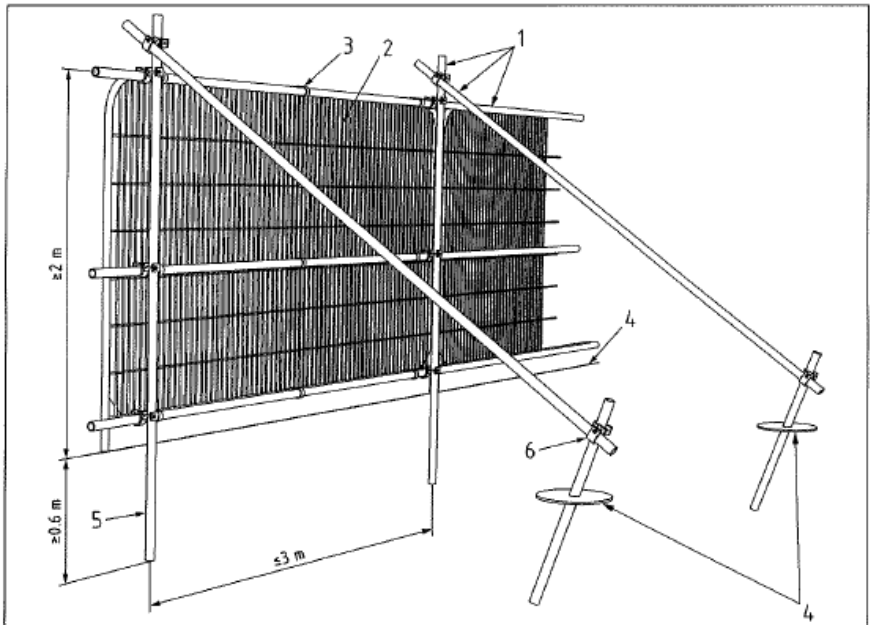
Tree Protection

Tree guards and barriers are often made from mesh or heavy metal such as cast iron. They often have spikes on the base of the guard to make it easier to fit. Tree guards will range from small, medium, and large.

6.2.2.2 of BS 5837 sets specifications for guards and barriers. The barrier should be a minimum of 2 metres high. The extract below is taken from BS 5837.

The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in figure 2. The vertical tubes should be spaced at a maximum interval of 3m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project Arboriculturalist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Appendix 7
Works Undertaken Near Trees

Working within RPAs

1.0 New services

New development may result in services being run through the tree protection zone of a tree. The arboricultural consultant must be contacted before this is undertaken and then the LPA tree officer can agree any recommendations. This is vital for works to continue. Excavation should only be undertaken by hand and cutting roots should only be done as a last resort. Roots less than 25mm in diameter can be cut by leaving a small wound but roots greater than this will need to be referred first.

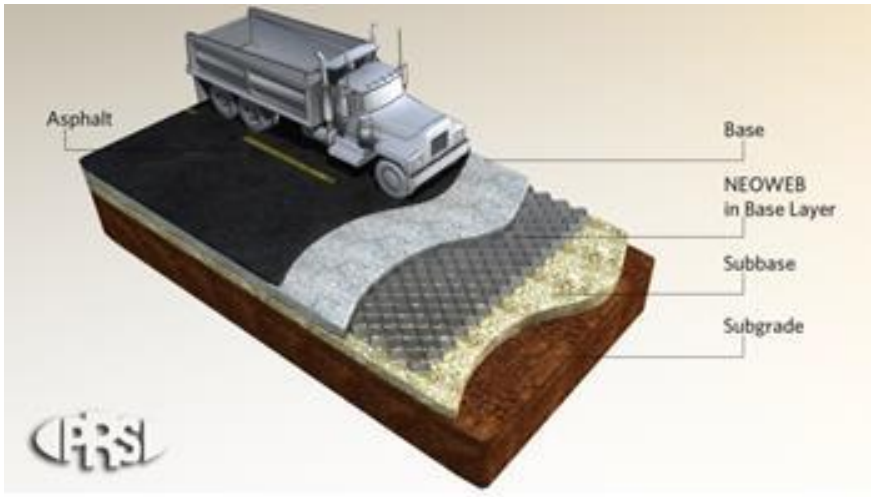
2.0 New hard surfacing

The LPA must agree that hard surfaces are acceptable in this case and then a type of no-dig construction made above ground will minimise impact to the tree roots. This should be made of a porous material and design which allows water and air to easily pass in and out.

Whilst roots are exposed, they should be immediately wrapped or covered to prevent any desiccation. A geotextile should be used at the base of construction to help prevent any pollution that could contaminate the rooting area below it.

The surfacing should be set back from the stem of the tree. It should be remembered that the load of the hard surface should be spread to avoid compaction.

The diagram below shows an example of a cellular confinement system (typically using geocells)



Appendix 8

Specific Report Caveats

Specific report caveats

- Some estimations were made where the trees were inaccessible, but this should not have a significant effect on the recommendations
- This report and survey is concerned only with arboricultural issues
- Trees are living organisms that can change frequently meaning further examination may be required. Likewise, a new survey and report will need to be undertaken if development or construction proposals change.
- Equipment used included diameter tape and a clinometer, no internal equipment was used
- All relevant wildlife and countryside legislation should be considered before undertaking any works relating to trees
- It is recommended that tree works are not undertaken within the bird nesting season (between March and September)
- This report is strictly for the purposes of the proposed works and should not be used in conjunction with any other project.