# **EUSTON TOWER** Arboricultural Impact Assessment

December 2023





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# <u>Arboricultural Impact</u> Assessment

- Tree Survey
- Tree Protection Plan
- Arboricultural Method Statement

# For:-

Euston Tower Planning Application

# <u>At:-</u>

Euston Tower 286 Euston Road London NW1 3DP

# On behalf of:-

British Land Property Management Limited c/o Gardiner & Theobald LLP 10 South Crescent London WC1E 7BD

# Prepared by:

Simon Stephens MA Oxon, Dip Arb(RFS), MArborA, C Env. MICFor Email: <u>simon@sjstephens.co.uk</u>

Survey Date: Report Date: Project no: 20<sup>th</sup> October 2022 29<sup>th</sup> November 2023 1993

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# 1 BACKGROUND

- **1.1** This Arboricultural Impact Assessment has been prepared in support of an application at Euston Tower, 286 Euston Road, London, NW1 3DP. Details of the proposal are included in section 5.1.1 below.
- **1.2** Trees were surveyed, with findings shown in the Tree Schedule in Appendix B and plotted on the Tree Protection Plan in Appendix A. This also shows tree protection measures, which are specified in the Arboricultural Method Statement in section 5 below. The arboricultural impact is assessed in section 6, which assumes that these measures are followed.
- **1.3** The tree survey was undertaken, and this report has been prepared, by Simon Stephens MA Oxon, Dip Arb (RFS), MArborA, C Env, MICFor a Registered Consultant with the Arboricultural Association, with over 20 years relevant experience.
- **1.4** This survey and report have been prepared in accordance with the recommendations of BS 5837:2012, Trees in relation to design, demolition and construction Recommendations.

- **1.5** Documentation supplied:
  - Topographical Survey
  - SJ Stephens Associates, Tree Constraints Plan, drawing no:1993-01
  - DSDHA, Proposed General Arrangement Plan: drawing no 364-20.001
  - DSDHA, Proposed Landscape Ground Floor Planting Plan: drawing no 364-20.004
  - 3XN, Existing Basement plan, drawing no ET-DR-A-00099

# 2 SURVEY DETAILS AND SCOPE

- **2.1** The site survey included trees and shrubs, within and immediately adjacent to the red line boundary, with a stem diameter over 75mm at 1.5m height, as shown located on the Tree Protection Plan, included as Appendix A.
- **2.2** Tree inspection took place from ground level with the use of binoculars, sounding hammer and metal probe using the Visual Tree Assessment method (Mattheck & Breloer 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies and any structural defects that could increase the risk of structural failure were noted.
- **2.3** Tree diameters were measured using a girthing tape and tree heights were measured using a hypsometer.
- **2.4** At the time of the survey, the weather was wet but with no restrictions to visibility. Broadleaf trees were in leaf. There were no limitations to access around the trees, other than for T1 and T5 (see Appendices A and B) where site hoarding prevented access.
- **2.5** The suitability of trees for inclusion in the future development was considered, in particular considering the safe useful life expectancy, and sustainability, of trees on the site after development is completed.
- **2.6** Tree details are shown on the Tree Protection Plan included at Appendix A. Tree locations have been taken from the topographical survey provided. Where not included on the topographical survey, they have been determined by measuring distances from features shown on the plan, using a laser measuring device. The following information was recorded for each tree, and is shown in the Tree Schedule included as Appendix B:
  - Number: an identity number for each tree, prefixed with a "T", which cross references locations shown on the plan with the schedule in Appendix B. Where a number of trees are located close together and are similar in character and management requirements, they have been treated as a Group under a single number, prefixed with a "G".

- **Species**: common name.
- **Tree height**: approximate height in metres.
- **Stem diameter**: diameter in millimetres, taken at 1.5m above ground. Where there are a number of stems, stem diameters are recorded in the condition column.
- **Branch spread**: approximate spread in metres to N,S,E and W of the trunk. The approximate branch spread is drawn on the plan.
- **Canopy clearance**: approximate height of the canopy above ground. Where a significant, low lateral branch is present, its height and direction of growth is included in the Condition column.
- **Age class**: Young, Semi-mature, Early mature, Mature, Over-mature, Veteran.
- **Condition**: features that affect the safe useful life expectancy and amenity of the tree, including the presence of decay or any physical defect.
- **Management Recommendations**: recommendations to ensure the health and safety of the tree, within the future development.
- Estimated Remaining Contribution: <10 years, 5-15 years, 10-20 years, 15-30 years, 20-40 years, >40 years.
- **Category grading**: tree classification taken from BS 5837:2012, Trees in relation to design, demolition and construction (see Appendix C for details), as follows:
  - Category U: Unsuitable for retention, trees with less than 10 years life expectancy, normally recommended for removal (Red)
  - Category A: high quality trees, able to make a substantial contribution for at least 40 years, normally retained unless there is an over-riding reason for removal and appropriate mitigation. (Green)
  - Category B: moderate quality trees, able to make a significant contribution for at least 20 years, normally retained. (Blue)
  - Category B/C: an intermediate category between categories B and C (not specifically described in BS5837:2012). Trees, which should be retained wherever possible, providing retention does not unreasonably constrain the layout. (Cyan)
  - Category C: low quality, in adequate condition to remain for at least 10 years, or young trees <150mm stem diameter. Trees which can be removed to allow the desired layout or new planting. (Grey)

For category A, B and C trees, a subcategory has been allocated, providing information on the reasons for selection of a specific category, as follows:

- Subcategory 1: mainly arboricultural values.
- Subcategory 2: mainly landscape values.
- Subcategory 3: mainly cultural values, including conservation.
- Trees have been classified irrespective of the possible proximity to future construction. The BS 5837 category is colour coded, as indicated above, on the plan included as Appendix A.
- Protection Distance: the protection distance in metres required to provide the Root Protection Area recommended in BS 5837, assuming a circular area centred on the tree.

 Root Protection Area (RPA): the area in m<sup>2</sup>, as recommended in BS 5837, to provide sufficient rooting area to ensure tree survival and which, in most situations, should be fenced off to prevent root damage from construction activities.

# **3 SURVEY LIMITATIONS**

- 3.1 No internal decay devices, or other invasive tools to assess tree condition, were used.
- **3.2** No soil excavation or root inspection was carried out.
- **3.3** This survey has not considered the effect that trees or vegetation may have on the structural integrity of future building through subsidence or heave.
- **3.4** The tree survey has been undertaken for planning purposes. Although any obvious structural defects have been noted, a Tree Hazard Assessment has not been carried out. Mature trees close to highly populated areas or public highways should normally be checked for safety annually, by a suitably qualified person.

# 4 LEGAL PROTECTION OF TREES

4.1.1 The site is not within a Conservation Area and there are no Tree Preservation Orders.

# 5 ARBORICULTURAL METHOD STATEMENT

### 5.1 Site Overview

5.1.1 The proposed development includes the redevelopment of Euston Tower, including the partial retention (retention of existing core, foundations and basement), disassembly, reuse and extension of the existing building, to provide a 32-storey building for use as offices and research and development floorspace (Class E(g)) and office, retail, café and restaurant space (Class E) and learning and community space (Class F) at ground, first and second floors, and associated external terraces. It also includes provision of public realm enhancements, including new landscaping, and provision of new publicly accessible steps and ramp, together with provision of short and long stay cycle storage, servicing, refuse storage, plant and other ancillary and associated works.

- 5.1.2 The proposed site plan is included as Appendix F and key details, including the extent of the basement, have been added to the survey drawing, along with tree details, to create the Tree Protection Plan attached as Appendix A. The proposed basement follows the line of the existing basement adjacent to T19, where the existing basement retaining wall will be kept. The Root Protection Area of T19 is shown as a polygon avoiding the existing basements.
- 5.1.3 The existing landscaping within the square is a temporary scheme by Townshend Landscape Architects. The square features large, planted seating platforms with low perennial planting. Seven existing trees sit below grade in suspended tree pits.
- 5.1.4 North of the tower, Brock Street features a linear arrangement of plane trees planted in suspended pits, between which are a series of basement vents, wood benches, and cycle stands. These trees (T20-T26) are growing in the narrow passage between the buildings. As can be seen in the photos in Appendix Eiv), they are growing well but are in a constrained location and have a limited life expectancy. They provide character and shade, however must be removed to construct the new basement, but will be replaced with new landscaping.
- 5.1.5 Alongside Euston Road there are three London plane, two of which will be retained: T9 is a mature tree which is leaning over the road but showing good vigour and T8 is a younger tree showing more symmetric form. T11 is a wide spreading tree without a leading shoot which needs to be removed for construction access, but which will be replaced by new planting.
- 5.1.6 There are three raised beds (G10, G17 and G18), each containing semi-mature trees planted at close spacing on a rectangular grid and regularly pruned to create a rectangular block shaped feature. Although these are an attractive feature at present, the rooting area is limited. These raised beds will be removed and replaced with new landscaping.
- 5.1.7 There is good quality semi-mature London plane (T16) developing well in a prominent position at the corner of Euston Road and Hampstead Road. Other trees at this location are of mixed quality. These trees (T12, T13, T14, T15 and T16) will all need to be removed for construction access, but will be replaced by new planting.
- 5.1.8 Photos of trees are included in Appendix E.

### 5.2 Tree Work

- 5.2.1 Details of proposed tree works are included in the Tree Schedule included as Appendix B.
- 5.2.2 20 trees and 3 tree groups are proposed for removal, as detailed in section 6.1 below.
- 5.2.3 All tree work must be undertaken to the standards set out in BS 3998:2010 Tree work Recommendations.

# 5.3 Root Protection Areas

- 5.3.1 Root Protection Areas are shown for all trees in the tree schedule included as Appendix B. They are also shown for all retained trees, as circular areas centred on the trunk, on the Tree Protection Plan included as Appendix A. Where there are physical obstructions to root growth the Root Protection Area should be shown as an equivalent area that is more likely to reflect actual root growth. However, in this site the majority of trees are surrounded by hard surfacing on all sides making it impossible to accurately predict the root spread.
- 5.3.2 The Root Protection Area shows the area around a tree in which all construction activity must normally be excluded, unless appropriate protection measures are implemented.
- 5.3.3 For tree number T19, where the existing basements within the Root Protection Area will have prevented root growth, the Root Protection Area has been shown as a polygon of equivalent area, to more closely reflect the likely actual root spread.

# 5.4 Tree Protection Fencing

- 5.4.1 Tree Protection Fencing must be erected where shown on the Tree Protection Plan, included as Appendix A. This will provide full protection of the Root Protection Areas of all retained trees.
- 5.4.2 Tree works can be completed before Tree Protection Fencing is erected, however no contractors plant or vehicles must be allowed to track within the Root Protection Areas unless hard surfacing is present or ground protection panels are laid.
- 5.4.3 Tree Protection Fencing must be from weldmesh panels, at least 2m high, securely fixed, with wire or scaffold clamps, to a rigid framework. This framework must be constructed from scaffold tubes with vertical tubes, at a maximum interval of 3m and driven into the ground at least 0.6m. The structure must be well braced to resist impacts, constructed as per Figure 2 of BS5837:2012, which is reproduced in Appendix D.
- 5.4.4 Tree Protection Fencing can be substituted with timber hoarding, provided of solid timber construction and at least 2m in height. Where within Root Protection Areas, hoarding should be supported by ballast boxes.
- 5.4.5 Tree Protection Fencing must be maintained and retained for the duration of the works, or until such time as agreed in writing with the Local Planning Authority.

5.4.6 Weatherproof notices must be fixed to the Tree Protection Fencing, and maintained, stating:-

#### TREE PROTECTION AREA KEEP OUT

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS CONTRAVENTION MAY LEAD TO CRIMINAL PROSECUTION THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:

- The Protection Fence must not be moved
- No person or machine must enter the area
- No materials or spoil must be deposited
  - No excavation must be permitted

# ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

# 5.5 Ground Protection Area

- 5.5.1 Although the Ground Protection Area, shown shaded cyan on the Tree Protection Plan, is outside the site, it is likely that existing services within the Root Protection Area will be replaced, requiring excavation within the Root Protection Area.
- 5.5.2 Within the Ground Protection Area, removal of existing hard surfacing can be carried out mechanically providing a banksman is in attendance at all times to ensure this ceases as soon as soil is reached or if any tree roots are seen. All further excavation must be undertaken by hand, retaining all roots over 25mm in diameter and as many fibrous roots as possible. Either hand tools or an air spade can be used. The services must then be threaded between any roots, before backfilling the trench with the excavated soil. If the location of roots makes this impossible, the retained arboricultural consultant must inspect and advise. The trench must be left open for as short a time as possible, with any exposed roots covered with hessian to prevent desiccation or frosting.
- 5.5.3 While any construction work is undertaken within the Ground Protection Area, the stem of T19 must be protected by a Trunk Protecta, as supplied by Green Grid Systems (see <u>www.greengridsystems.com</u> and appendix G).
- 5.5.4 If any of the existing paving within the Ground Protection Area is to be replaced, the existing sub-base must remain in place and the new surfacing must be permeable.

### 5.6 General measures

5.6.1 No construction activity whatsoever, including routing of underground services, storage of materials or on-site parking, must be allowed within the site within Root Protection Areas, other than that specifically described above.

- 5.6.2 No mixing or storage of cement, concrete, oil, fuel, bitumen or other chemicals must be permitted within 10m of the trunk of any retained trees, nor in any position where the slope of the ground could lead to contamination of the Root Protection Area.
- 5.6.3 Fires must not be lit in a position where their flames could extend to within 10m of foliage, branches or trunk.
- 5.6.4 Landscape works carried out within Root Protection Areas must be undertaken with great care so as not to damage shallow roots. Tractor mounted rotovators or other heavy mechanical cultivation must not be used within the Root Protection Areas.
- 5.6.5 If any tree shown for retention is removed, uprooted or destroyed, another tree must be planted in the same location, at a size and species to be agreed in writing with the Local Planning Authority.
- 5.6.6 A copy of this report and the Tree Protection Plan must be kept on site and must be fully understood by the Site Agent.

# 5.7 Bat roosts

5.7.1 The current legislation makes it a criminal offence to disturb, damage or destroy any bat roost or hibernation area. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found.

### 5.8 Birds

5.8.1 The current legislation makes it a criminal offence to disturb nesting birds. The nesting season is generally assumed to be from 1<sup>st</sup> March to 31<sup>st</sup> July, however this can vary depending on species and location. During these months a careful inspection must be made before work commences and works must be postponed if active nests are found.

### 5.9 Arboricultural Supervision

- 5.9.1 A qualified Arboricultural Consultant must be retained during the period of construction to carry out the following:
  - to inspect Tree Protection Fencing/Site Hoarding, prior to construction or demolition starting on site.
  - to visit site regularly throughout the main construction period, particularly if any excavation is required to replace services within the Root Protection Area of T19.

- as necessary, to advise on any issues at the request of the local planning authority, the developer, architect or contractor.

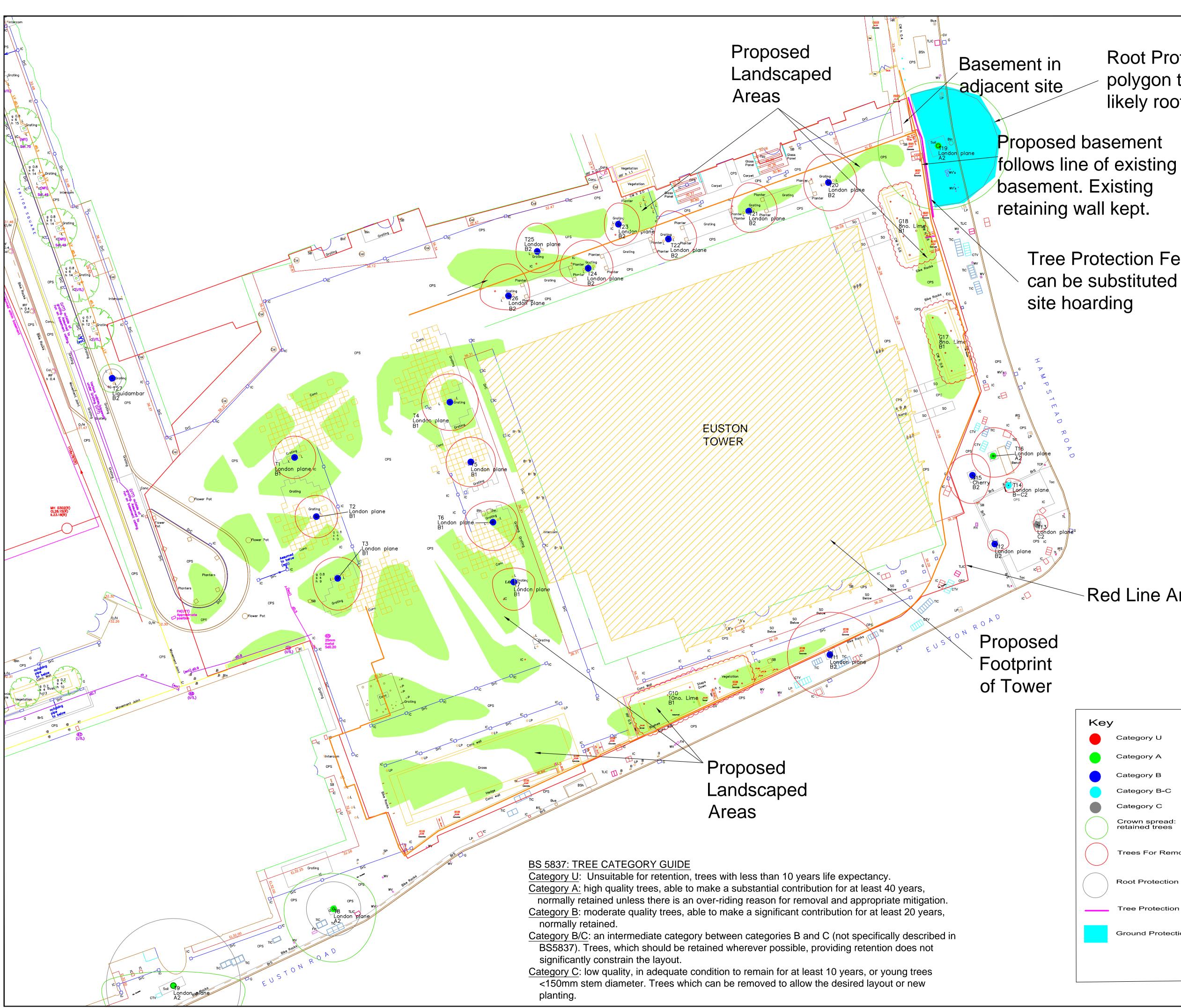
The details of each site visit must be recorded using a site visit proforma, with copies circulated to the contractor, developer and the local authority Tree Officer within 3 working days of the visit.

# 6 ARBORICULTURAL IMPACT ASSESSMENT

- **6.1** The following trees / tree groups, categorized as per BS 5837 (see Appendix C for details), are proposed for removal:
  - Category C low quality
    - T13 a low quality, semi-mature leaning London plane
  - Category B-C between categories B and C
    - T14 a 5.5m leaning, semi-mature London plane
  - Category B moderate quality:
    - T1, T2, T3, T4, T5, T6, T7 7no semi mature London plane, between 11.5 and 12m in height, growing in suspended tree pits so reducing life expectancy.
    - G10, G17 and G18 26 semi-mature lime trees, between 5 and 7m in height, growing at close spacing in raised beds.
    - T11 a 9m early mature London plane which needs to be removed to facilitate construction, but which will be replaced by a new semi mature tree.
    - T12 a 4m leaning, semi-mature London plane
    - T15 a 4m early mature cherry
    - T20, T21, T22, T23, T24, T25 and T26 -7no semi mature London plane, between 11.5 and 12m in height, growing in suspended tree pits so reducing life expectancy..
  - Category A good quality:
    - T16 an 11m semi-mature London plane
- **6.2** Although the 18 good or moderate quality, well established trees will be removed, their removal will be mitigated by the planting of 120 new trees of seven different species.
- **6.3** Protection measures have been specified to protect the Root Protection Areas of all retained trees, with arboricultural supervision included to assist with tree protection measures.
- **6.4** Although outside the site, the greatest risk of arboricultural impact is through excavation to replace services within the Root Protection Area of T19, where any work required must be undertaken as detailed in section 5.5 above.
- **6.5** Provided the recommendations in this report are followed and adequate rooting volume is allowed for new tree planting, the arboricultural impact of this development on existing tree cover is considered acceptable.

# **7** REFERENCES

- BS5837:2012 Trees in relation to design, demolition and construction Recommendations.
- BS3998:2010 Tree Work. Recommendations.
- BS8545:2014 Trees: from nursery to independence in the landscape. Recommendations.
- The use of Cellular Confinement systems near Trees: a guide to good practice Arboricultural Association Guidance Note 12.



# APPENDIX A Root Protection Area shown as a polygon to more accurately show likely root distribution

Tree Protection Fencing can be substituted with

# Red Line Area

| w- <b>(</b> | N<br>S |     |
|-------------|--------|-----|
| Scale       |        |     |
| Q           | 5m     | 10r |

| <ey< th=""><th>,</th></ey<> | ,                               |
|-----------------------------|---------------------------------|
|                             | Category U                      |
|                             | Category A                      |
|                             | Category B                      |
|                             | Category B-C                    |
|                             | Category C                      |
|                             | Crown spread:<br>retained trees |
|                             | Trees For Removal               |
|                             | Root Protection Area            |
|                             | Tree Protection Fence           |
|                             | Ground Protection Area          |
|                             |                                 |
|                             |                                 |
|                             |                                 |

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JOB TITLE EUSTON TOWER

DRAWING TITLE TREE PROTECTION PLAN

DRAWING NUMBER 1993-02

REVISIONS

SCALE 1: 250atA1

DRAWN BY NOV 23 sjss

# Appendix B BS 5837: 2012 Tree Schedule

| Tree/<br>Group<br>No. | Species      | Height<br>(m) | Stem<br>Diam. at<br>1.5m<br>(mm) | Branch Spread (m) |     |     | Branch Spread (m) |     |                 | Branch Spread (m)   |   | Branch Spread (m) |    | Branch Spread (m) |     | Branch Spread (m) |  | Branch Spread (m) |  | Branch Spread (m) |  | Branch Spread (m) |  | Branch Spread (m) |  | Age<br>Class | Observations | Management<br>Recommendations | Estimated<br>Remaining<br>Contribution<br>(years) | BS 5837<br>Category<br>Grading | Protect<br>-ion<br>Distance<br>(m) | Root<br>Protect.<br>Area<br>(m2) |
|-----------------------|--------------|---------------|----------------------------------|-------------------|-----|-----|-------------------|-----|-----------------|---|---|-------------------|----|-------------------|-----|-------------------|--|-------------------|--|-------------------|--|-------------------|--|-------------------|--|--------------|--------------|-------------------------------|---|--------------------------------|------------------------------------|----------------------------------|
|                       |              |               |                                  | Ν                 | S   | Е   | W                 |     |                 |   |   |                   |    |                   |     |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T1                    | London plane | 12            | est 280                          | 3                 | 3   | 3   | 3                 | 2   | Semi-<br>mature | Access not possible to inspect base. Good vigour.<br>Crown reduction undertaken. T1-T7 planted in a grid<br>in suspended tree pits, reducing life expectancy.   | Remove to implement new landscape scheme                        | 20-40             | B1 | 3.4               | 35  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T2                    | London plane | 12            | 320                              | 3                 | 3   | 3   | 3                 | 2   | Semi-<br>mature | Steel decking approximately 0.6m above root plate.<br>Extensive lighting cables within canopy, which<br>threaten to become embedded and damage the tree.<br>Previously reduced. Life expectancy reduced as in a<br>suspended tree pit.  | Remove to implement new<br>landscape scheme                     | 20-40             | B1 | 3.8               | 46  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т3                    | London plane | 12            | 300                              | 3                 | 4.5 | 3.5 | 3.5               | 1.9 | Semi-<br>mature | Good vigour. As above. Life expectancy reduced as in a suspended tree pit.  | Remove to implement new landscape scheme                        | 20-40             | B1 | 3.6               | 41  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T4                    | London plane | 12            | 290                              | 4                 | 4   | 4   | 4                 | 2   | Semi-<br>mature | Good form and vigour. Life expectancy reduced as in a suspended tree pit.   | Remove to implement new landscape scheme                        | 20-40             | B1 | 3.5               | 38  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т5                    | London plane | 12            | est 300                          | 3.5               | 3.5 | 3.5 | 3.5               | 1.8 | Semi-<br>mature | Access to inspect base not possible. Good vigour. Life expectancy reduced as in a suspended tree pit.   | Remove to implement new<br>landscape scheme                     | 20-40             | B1 | 3.6               | 41  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т6                    | London plane | 12            | 320                              | 3                 | 4   | 3.5 | 4                 | 2   | Semi-<br>mature | Good vigour. Life expectancy reduced as in a<br>suspended tree pit.   | Remove to implement new<br>landscape scheme                     | 20-40             | B1 | 3.8               | 46  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т7                    | London plane | 11.5          | 270                              | 2                 | 4   | 3   | 3                 | 2   | Semi-<br>mature | Reasonable vigour, but not as dense a canopy as T1-<br>T6. Life expectancy reduced as in a suspended tree<br>pit.   | Remove to implement new<br>landscape scheme                     | 20-40             | B1 | 3.2               | 33  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т8                    | London plane | 12            | 320                              | 5                 | 7.5 | 6   | 7                 | 1.9 | Semi-<br>mature | Slight lean to south. Canopy beginning to obstruct traffic. Good vigour.  |   | >40               | A2 | 3.8               | 46  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| Т9                    | London plane | 17            | 790                              | 2                 | 10  | 10  | 10                | 2   | Mature          | Asymmetric canopy. Weighted to south.   |   | >40               | A2 | 9.5               | 282 |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| G10                   | 10no. Lime   | 6.5-7         | 150-190                          |                   |     |     |                   | 1.9 | Semi-<br>mature | A block of 10 trees regularly pruned to create a<br>rectangular block. Growing in 2 raised beds, with level<br>of eastern bed 0.8m above western bed. Some trees<br>have had bark wounds in the past which have<br>callused. Western group have cables around stems,<br>supported by nails. | Remove to implement new<br>landscape scheme                     | 15-30             | B1 | 2.3               | 16  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T11                   | London plane | 9             | 310                              | 6                 | 6   | 7   | 6                 | 1.9 | Early<br>mature | Growing in 1.3m by 1.3m tree pit within paved area.<br>No leading shoot. Split in branch at 3m. Wide<br>spreading, but poor structure. Canopy extending 0.8m<br>under shade structure.  | Remove to facilitate<br>construction. Replace on<br>completion. | >40               | В2 | 3.7               | 43  |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T12                   | London plane | 4             | 110                              | 2                 | 1   | 2   | 1                 | 1.7 | Semi-<br>mature | Good vigour. Leaning to east.   | Remove to facilitate<br>construction. Replace on<br>completion. | >40               | B2 | 1.3               | 5   |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |
| T13                   | London plane | 3.5           | 100                              | 1.5               | 1   | 1.5 | 0.5               | 1.6 | Semi-<br>mature | Leaning to east. Reduced vigour.  | Remove to facilitate<br>construction. Replace on<br>completion. | 10-20             | C2 | 1.2               | 5   |                   |  |                   |  |                   |  |                   |  |                   |  |              |              |                               |   |                                |                                    |                                  |

# Appendix B BS 5837: 2012 Tree Schedule

| Tree/<br>Group<br>No. | Species      | Height<br>(m) | Stem<br>Diam. at<br>1.5m<br>(mm) | Branch Spread (m) |     |     | Branch Spread (m) |     |                 |  | Branch Spread (m)   |       |      | Branch Spread (m) |     |  | Branch Spread (m) |  |  | Branch Spread (m) |  |  | Branch Spread (m) |  |  | Branch Spread (m) |  |  | Branch Spread (m) |  |  | Branch Spread (m) |  |  | 3ranch Spread (m) |  |  | Observations | Management<br>Recommendations | Estimated<br>Remaining<br>Contribution<br>(years) | BS 5837<br>Category<br>Grading | Protect<br>-ion<br>Distance<br>(m) | Root<br>Protect.<br>Area<br>(m2) |
|-----------------------|--------------|---------------|----------------------------------|-------------------|-----|-----|-------------------|-----|-----------------|--|---|-------|------|-------------------|-----|--|-------------------|--|--|-------------------|--|--|-------------------|--|--|-------------------|--|--|-------------------|--|--|-------------------|--|--|-------------------|--|--|--------------|-------------------------------|---|--------------------------------|------------------------------------|----------------------------------|
|                       |              |               | ()                               | Ν                 | S   | Е   | W                 | (m) |                 |  |   | () () |      |                   |     |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T14                   | London plane | 5.5           | 100                              | 1                 | 1   | 2   | 0.5               | 1.7 | Semi-<br>mature | Good vigour but leaning to east.   | Remove to facilitate<br>construction. Replace on<br>completion. | 15-30 | B-C2 | 1.2               | 5   |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T15                   | Cherry       | 4             | 150                              | 3                 | 4   | 2.5 | 3.5               | 1.8 | Early<br>mature | Good form and vigour.  | Remove to facilitate<br>construction. Replace on<br>completion. | 20-40 | B2   | 1.8               | 10  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T16                   | London plane | 11            | 240                              | 4                 | 3   | 4   | 3                 | 1.7 | Semi-<br>mature |  | Remove to facilitate<br>construction. Replace on<br>completion. | >40   | A2   | 2.9               | 26  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| G17                   | 8no. Lime    | 5             | 110-140                          |                   |     |     |                   | 1.6 | Semi-<br>mature | 8 trees growing in a 0.7m raised bed. Regularly pruned to create a rectangular block.  | Remove to implement new<br>landscape scheme                     | 20-40 | B1   | 1.7               | 9   |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| G18                   | 8no. Lime    | 5             | 160-220                          |                   |     |     |                   | 1.6 | Semi-<br>mature | 8no trees growing in a 0.6m raised bed. Regularly pruned to create a rectangular block. Showing good vigour.   | Remove to implement new<br>landscape scheme                     | 20-40 | B1   | 2.6               | 22  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T19                   | London plane | 17            | 570                              | 9.5               | 9   | 10  | 8.5               | 1.7 | Early<br>mature | Growing in a 2m by 2m pit within paving. Stem leans<br>to east, but with a well balanced canopy against<br>adjacent building and obscuring street lamp. Important<br>tree.   |   | >40   | A2   | 6.8               | 147 |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T20                   | London plane | 11.5          | 310                              | 4                 | 4   | 4   | 3.5               | 1.7 |                 | Raised paving, 0.6m above planting level. Good<br>vigour. Growing against adjacent buildings, support for<br>flood lights now embedded in stem. T20-T26 planted<br>in suspended tree pits, reducing life expectancy. | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.7               | 43  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T21                   | London plane | 12            | 250                              | 4                 | 3   | 4   | 2.5               | 3.2 |                 | Not as vigorous as other trees due to shading, but still<br>showing reasonable vigour. Raised paving. 0.6m<br>above planting level. Support for flood lights now<br>embedded in stem.                                | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.0               | 28  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T22                   | London plane | 12            | 260                              | 4                 | 3   | 4   | 2                 | 3   | Semi-<br>mature | Slight lean to north . Reasonble vigour. Raised<br>paving. 0.6m above planting level. Support for flood<br>lights now embedded in stem.  | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.1               | 31  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T23                   | London plane | 11.5          | 250                              | 3                 | 3   | 3   | 2                 | 2   | Semi-<br>mature | Slight lean to north . Reasonable vigour. Raised<br>paving. 0.6m above planting level. Support for flood<br>lights now embedded in stem.   | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.0               | 28  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T24                   | London plane | 11.5          | 280                              | 4                 | 2.5 | 3.5 | 4                 | 2.1 | Semi-<br>mature | Reasonable vigour.   | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.4               | 35  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |
| T25                   | London plane | 11.5          | 260                              | 4                 | 3   | 3   | 3                 |     | Semi-<br>mature | Reasonable vigour.   | Remove to implement new<br>landscape scheme                     | >40   | B2   | 3.1               | 31  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |                   |  |  |              |                               |   |                                |                                    |                                  |

#### **Euston Tower**

### Appendix B BS 5837: 2012 Tree Schedule

| Tree/<br>Group<br>No. | Species      | Height<br>(m) | Stem<br>Diam. at<br>1.5m<br>(mm) | Bra | Branch Spread (m) |   | Canopy<br>Cleara<br>-nce<br>(m) | Age<br>Class | Observations    | Management<br>Recommendations                            | Estimated<br>Remaining<br>Contribution<br>(years) | BS 5837<br>Category<br>Grading | Protect<br>-ion<br>Distance<br>(m) | Root<br>Protect.<br>Area<br>(m2) |    |
|-----------------------|--------------|---------------|----------------------------------|-----|-------------------|---|---------------------------------|--------------|-----------------|--|---|--------------------------------|------------------------------------|----------------------------------|----|
|                       |              |               |                                  | Ν   | S                 | ш | w                               |              |                 |  |   |                                |                                    |                                  |    |
| T26                   | London plane | 11.5          | 270                              | 4.5 | 2                 | 3 | 4                               | 1.8          | Semi-<br>mature | Slight lean to north, but good vidour.                   | Remove to implement new<br>landscape scheme       | >40                            | B2                                 | 3.2                              | 33 |
| T27                   | Liquidambar  | 9             | 110                              | 2   | 2                 | 2 | 2                               | 1.8          | Semi-<br>mature | Showing good vigour. Growing in 2.5m by 2.5m raised bed. |   | 20-40                          | B2                                 | 1.3                              | 5  |

# BS 5837:2012, Table 1 Cascade chart for tree quality assessment

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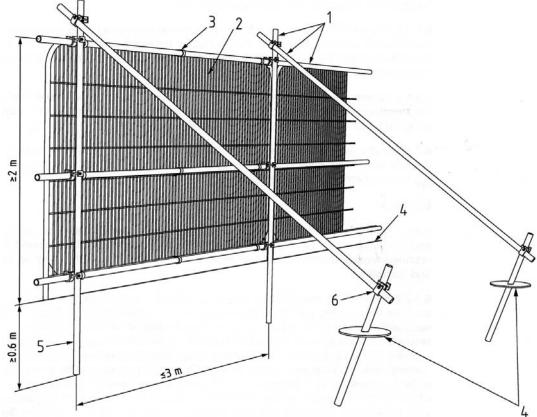
| Category and definition  | Criteria (including subcategories where a  | ppropriate)   |   | Identificatior<br>on plan |  |  |  |  |
|--|--|---|---|---------------------------|--|--|--|--|
| Trees unsuitable for retention   | (see Note)   |   |   |                           |  |  |  |  |
| Category U   |  | le, structural defect, such that their early loss   |   | See Table 2               |  |  |  |  |
| Those in such a condition<br>that they cannot realistically  | including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)  |   |   |                           |  |  |  |  |
| be retained as living trees in   | <ul> <li>Trees that are dead or are showing s</li> </ul>   | igns of significant, immediate, and irreversible  | e overall decline   |                           |  |  |  |  |
| the context of the current<br>land use for longer than<br>10 years   | <ul> <li>Trees infected with pathogens of sig<br/>quality trees suppressing adjacent trees</li> </ul>  | nificance to the health and/or safety of other<br>ees of better quality   | trees nearby, or very low   |                           |  |  |  |  |
| 10 years   | NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.  |   |   |                           |  |  |  |  |
|  | 1 Mainly arboricultural qualities  | 2 Mainly landscape qualities  | 3 Mainly cultural values,<br>including conservation   | ÷                         |  |  |  |  |
| Trees to be considered for rete  | ention   |   |   |                           |  |  |  |  |
| Category A   | Trees that are particularly good   | rees, groups or woodlands of particular   | Trees, groups or woodlands  | See Table 2               |  |  |  |  |
| <b>Trees of high quality</b> with an<br>estimated remaining life<br>expectancy of at least<br>40 years   | examples of their species, especially if<br>rare or unusual; or those that are<br>essential components of groups or<br>formal or semi-formal arboricultural<br>features (e.g. the dominant and/or<br>principal trees within an avenue)   | visual importance as arboricultural and/or<br>landscape features  | of significant conservation,<br>historical, commemorative or<br>other value (e.g. veteran<br>trees or wood-pasture) |                           |  |  |  |  |
| Category B   | Trees that might be included in  | Trees present in numbers, usually growing   | Trees with material   | See Table 2               |  |  |  |  |
| Trees of moderate quality<br>with an estimated remaining<br>life expectancy of at least<br>20 years  | category A, but are downgraded<br>because of impaired condition (e.g.<br>presence of significant though<br>remediable defects, including<br>unsympathetic past management and<br>storm damage), such that they are<br>unlikely to be suitable for retention for<br>beyond 40 years; or trees lacking the<br>special quality necessary to merit the<br>category A designation | as groups or woodlands, such that they<br>attract a higher collective rating than they<br>might as individuals; or trees occurring as<br>collectives but situated so as to make little<br>visual contribution to the wider locality | conservation or other<br>cultural value<br>Trees with no material   |                           |  |  |  |  |
| Category C   | Unremarkable trees of very limited   | Trees present in groups or woodlands, but   | See Table 2   |                           |  |  |  |  |
| Trees of low quality with an<br>estimated remaining life<br>expectancy of at least<br>10 years, or young trees with<br>a stem diameter below<br>150 mm | merit or such impaired condition that<br>they do not qualify in higher categories  | without this conferring on them<br>significantly greater collective landscape<br>value; and/or trees offering low or only<br>temporary/transient landscape benefits   | conservation or other<br>cultural value   | (b)                       |  |  |  |  |

# British Standard BS 5837:2012 Default specification for protective barrier

#### Figure 2

Key

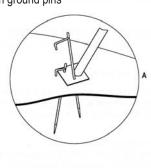
- 1 Standard scaffold poles
- 2 Heavy gauge 2 m galvanised tube and welded mesh infill panels
- Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps



#### Examples of above-ground stabilising systems

#### Figure 3a

Stabiliser strut with base plate secured with ground pins



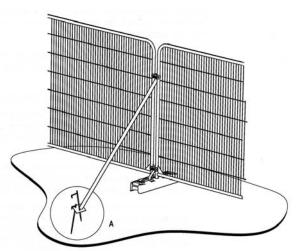
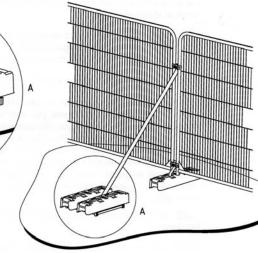


Figure 3b Stabiliser strut mounted on block tray

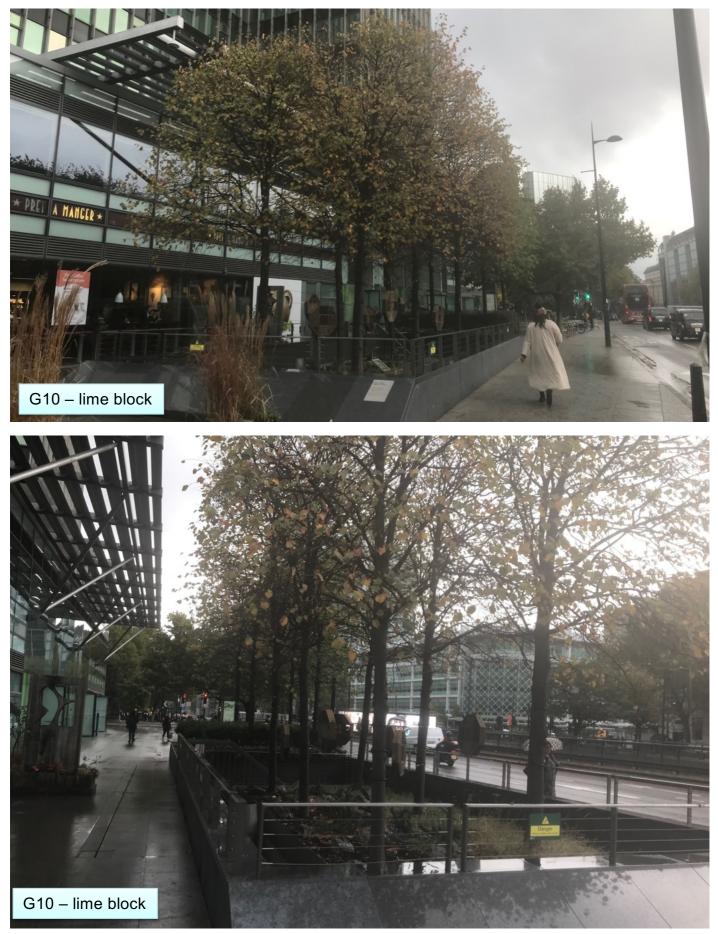


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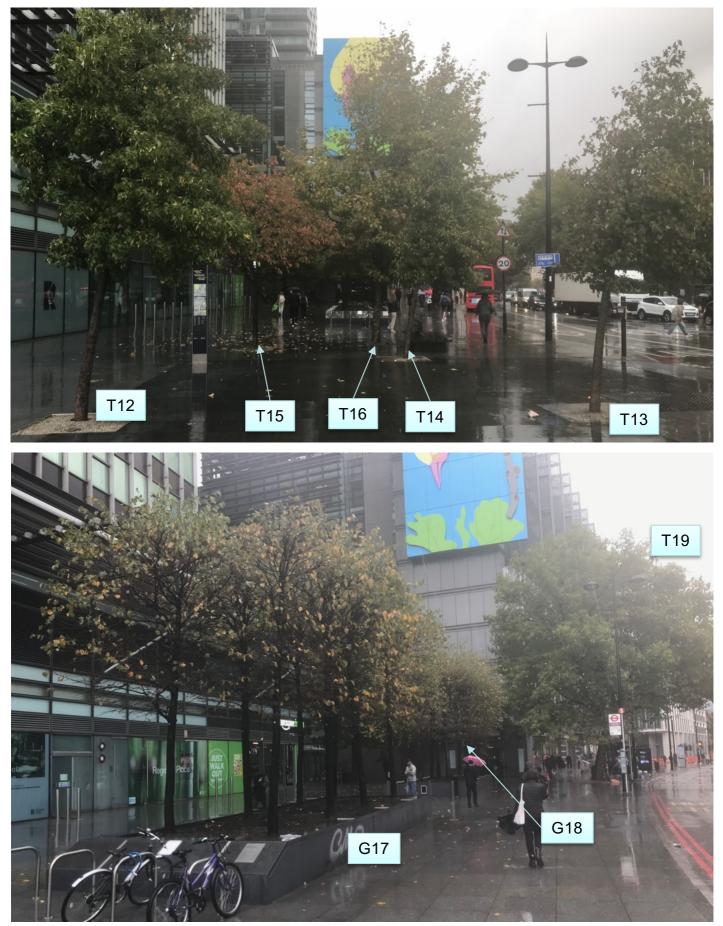
Appendix Ei)



# Appendix Eii)



# Appendix Eiii)



# Appendix Eiv)



# Appendix Ev)



# Appendix Evi)





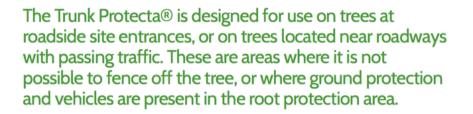


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# **Appendix G**

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The Protecta<sup>®</sup> is made from waterproof canvas to prevent the unit from holding water and starting rot. The canvas is hi-vis orange and banded with two stripes of reflective tape to ensure it is highly visible, even in low light situations. The Protecta<sup>®</sup> can be used on trees with a diameter (DBH) between 100-160cm. Quick release straps enable the Protecta<sup>®</sup> to be tightened for the smaller trees, and multiple Protectas<sup>®</sup> can be used for trees larger than 160cm.



# **Appendix H**

