M.Hort., MI Hort., Dip. FLS, Arb.(RFS), F.Arbor.A., Dip.Hort. Registered Consultant of the Arboricultural Association

Arboricultural and Landscape Management Consultants

# **PROPOSED EXTENSION TO EXISTING BUILDING**

AT

**101 BELSIZE LANE, LONDON NW3** 

# ARBORICULTURAL ASSESSMENT AND

# TREE PROTECTION METHOD STATEMENT

FOR

# HETREED ROSS ARCHITECTS



PO Box 305, HERTFORD, SG13 9EL

phone: 01992 552199 fax: 01992 584255 Mobile: 07973 224617 email: bgc.associates@care4free.net

**NOVEMBER 2008** 



#### PROPOSED EXTENSION TO EXISTING BUILDING

## AT

# 101 BELSIZE LANE, LONDON NW3

# ARBORICULTURAL ASSESSMENT AND

#### TREE PROTECTION METHOD STATEMENT

#### FOR

## HETREED ROSS ARCHITECTS

#### NOVEMBER 2008

This report must be read in conjunction with Drawings BGC1/101 Belsize Lane/TCP Rev.0 and BGC1/101 Belsize Lane /TPP Rev.0.

#### 1. INTRODUCTION

#### 1.1. Instructions

1.1.1. We are instructed to inspect trees on and adjoining land at 101 Belsize Lane, London NW3. We are to report on their age, condition, suitability for retention, safe, useful life expectancies and other matters of arboricultural interest. This assessment is to be informed by the provisions of British Standard 5837 'Trees In Relation To Construction' (2005).

#### **1.2. Background information**

1.2.1. Our clients are architects instructed in respect of the refurbishment and extension of the above property. They seek information as to the condition of trees on the site, the better to inform such proposals and to ensure the protection of retained trees during the development process.

#### **1.3. Drawings and documents**

1.3.1. We were supplied with a site drawing, apparently derived from an Ordnance Survey base. We carried out a triangulated, tape-measured survey of the site, superimposing it over this supplied site drawing. Whilst not to measured laser survey standard, we regard this as acceptably accurate for current purposes. We have annotated this with tree survey reference numbers, tree retention categories, root protection areas and crown radii. For ease of reference we added the ancillary title 101 Belsize Lane, London NW3 – Tree Constraints Plan (Reference: BGC1/ 101 Belsize Lane /TCP Rev.0). The development proposal was then superimposed over this drawing and a Tree Protection Drawing Reference: BGC1/101 Belsize Lane/Tree





Protection Plan Rev.0 was prepared, showing the location of tree protection measures.





# 2. REPORT ON SITE VISIT AND SITE APPRAISAL

#### 2.1. General

2.1.1. We visited the site on 11 November 2008. All arboricultural and other data contained in this report were obtained at this time.

#### 2.2. Survey methodology

2.2.1. **Inspection** Trees were inspected from ground level, using binoculars where necessary. No invasive examination technique (such as boring) was carried out.

## 2.3. Data

2.3.1. These are shown at Appendix A of this report, together with identified 'Root Protection Areas' (RPAs) calculated using formulae contained in British Standard 5837 (2005) 'Trees in relation to construction'

- □ Numbered tree reference (based on supplied topographical survey).
- □ Species
- □ Tree height
- □ Stem diameter (tree stem diameter in millimetres at 1.5 metres above adjacent ground level or immediately above root flare for multi-stemmed trees)
- □ Branch spread (at four cardinal points)
- □ Height in metres of crown clearance above adjacent ground level (to inform on ground clearance, crown stem ratio and shading)
- Age class (young, middle aged, mature, over-mature, veteran)
- □ Wildlife conservation value
- □ Physiological condition (e.g. good, fair, poor, dead)
- □ Structural condition (e.g. collapsing, the presence of any decay and physical defect)
- Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat
- Estimated remaining contribution in years (e.g. less than 10).
- □ Category grading (in accordance with British Standard 5837, 2005)

#### 2.3.2. Description of site

2.3.3. Belsize Lane is a mainly residential street within the London Borough of Camden. To the northeast is the public open space of Hampstead Heath, with Regents Park to the south. Landform is gently rolling. Belsize Lane runs roughly southwest-northeast from its southern junction with Fitzjohn Avenue, then looping to the northwest, to finally join Rosslyn Hill at its north-eastern end. The road is metalled with footways to either side. Traffic flow is moderate but constant.

2.3.4. 101 Belsize Lane stands on the south-eastern side of the road, facing due northwest. The property is a brick-built structure, under a slated, hipped and pitched roof. It was formerly a coach house with a tack room over. The building style is consistent with construction during the late Georgian/early Victorian period. There is



a small entrance yard and a rear garden, with some land to the western side. We understand that the property stands within a Conservation Area designated under the Town and Country Planning Act 1990 (as amended).

2.3.5. The tree population within the wider visual 'envelope' is moderately high with established subjects in rear gardens and publicly maintained highway trees forming the main elements.

# 2.4. Tree population on the site

2.4.1. The principal trees on the site are two limes (*Tilia x europaea* and *T. cordata*) and a horse chestnut (*Aesculus hippocastanum*) on the southernmost boundary – these provide important screening and are significant elements within the local landscape. There is a mature weeping ash (*Fraxinus excelsior* 'Pendula') towards the north of the rear garden. We understand that this tree is the subject of a Tree Preservation Order. A small number of mature flowering subjects (*Laburnum anagyroides, Prunus cerasifera* types and a young *Magnolia x soulangiana*) of internal landscape value were noted within the rear garden. We also recorded a young English yew (*Taxus baccata*) and a small number of trees in neighbouring gardens. Also noted were two poor quality *Chamaecyparis lawsoniana* (blue shrub forms – the species produces both tree and shrub cultivars) which had been pruned to leave dead branches (the form does not recover from pruning). These have limited, internal value and could be removed.





# 3. DISCUSSION

#### 3.1. Proposal

3.1.1. The development proposal calls (in addition to internal works) for the building of a rear extension to the property. Whilst no trees will be lost from the site, several trees may be threatened by the development process if appropriate and effective steps are not taken to ensure their protection.

## 3.2. Roots

3.2.1. In making an analysis of the likely threats to retained trees on a proposed development site, it is essential that it is understood that the majority of tree roots are found within the top half-metre or so of soil.

#### 3.3. Overall perceived threat analysis - methodology

3.3.1. Analysis of the likely impact of the proposed development on the tree population is considered as:-

- □ An overall assessment and listing of perceived threats in general terms.
- Detailed analysis of threats to trees likely to be particularly at risk.
- □ Threat management suggestions.

3.3.2. Retained trees on this site are likely to be at risk from:

- □ Root severance and other root damage, including soil compaction.
- □ Alterations to soil levels.
- □ Damage to aerial parts.
- General construction works and requirements, including placing of site accommodation.
- □ Measures for site access and installation of hard standing.
- □ Installation of service and drainage runs.

#### 3.4. Threats to trees during development

3.4.1. In recent years British Standard 5837 (1991) 'Trees in relation to construction' has provided useful guidance for the assessment and formulation of measures for the mitigation of such threats. Using the experience gained from this Standard, it was recently revised and upgraded to 'Recommendation' status as British Standard 5837 'Trees In Relation To Construction' (2005). A threat assessment and suggestions for threat mitigation, utilising the recommendations embodied in the Standard has been prepared in respect of the trees on or bordering this site. This is shown at Appendix B of this report. The British Standard relies heavily on the creation of a protected zone (Root Protection Area) around each tree – see last column of Appendix A and Drawing BGC1/101 Belsize Lane/TCP Rev.0. This zone is usually described as a circle, whose area is defined by the trunk diameter at 1.5 metres from ground level. More general remarks on the proposed development and its arboricultural implications are shown below.





## 3.5. Excavation – installation of foundations

3.5.1. Because the majority of tree roots are found at comparatively shallow levels in the soil, almost any excavation will sever them. Care must therefore be taken to ensure that soil disturbance is reduced to the minimum achievable. In this case, the use of piles, supporting non-sunken slabs or ground beams was considered, however, marrying levels within the house to those in the proposed extension would be impossible, and assessment of root loss has thus been considered. This showed that root loss on the side nearest the house, due to the construction of the extension's foundations, would encroach 11% into the Root Protection Area of Tree 1. No other trees would be affected by foundation construction. British Standard 5837 'Trees In Relation To Construction' (2005) allows for encroachment into the Root Protection Area of up to 20% on one side, provided extra room is allowed on the remaining sides of the tree. In addition, the extension will be supported on a reinforced 'raft' construction which will limit the depth of excavation necessary to approximately 300 millimetres - see Drawing 500 Revision CO1 by Structurelle Engineers of Bath, dated 6.10.08, entitled New Extension Ground Floor Reinforcement. We therefore consider that Tree 1 is likely to recover from any root damage caused by construction of foundations.

#### 3.6. Site access

3.6.1. Site access will be from the public highway into the paved yard at the front of the property.

#### 3.7. Land form grading and rotary cultivation

3.7.1. Again, the shallow depth of tree rooting must be stressed. Frequently, despite care in protecting trees during the development process, severe damage can be caused during the landscaping phase, particularly with mechanical cultivators. No hard or soft landscaping works should be carried out within Root Protection Areas without arboricultural advice.

#### 3.8. Ground compaction

3.8.1. This is likely to be avoided within Root Protection Areas, provided that protective fencing is erected and maintained in place during the whole period of the works. Recommendations for the erection of protective fencing outside protected areas as defined by the British Standard are made (see Drawing reference: BGC1/101 Belsize Lane /TPP Rev.0 and Appendix B).

#### 3.9. Physical damage to aerial parts

3.9.1. Physical damage to trunks and branches of retained trees may be a risk, particularly during excavation. The installation of protective fencing referred to above is likely to mitigate this danger to a considerable degree. Where piling is necessary, the use of a small or angled piling machine is likely to substantially reduce the chance of damage to aerial parts of retained trees.



# 3.10. Underground services

3.10.1. We understand that there will be no necessity for the installation of new service runs. Should, however this be necessary, within Root Protection Areas of retained trees, arboricultural advice should be sought. Any works should conform to the provisions of National Joint Utilities Council Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG Publications, Volume 4, Issue 1, 25/9/2007) [NJUG4].

#### 3.11. Storage, site facilities, etc.

3.11.1. All storage facilities should be outside Root Protection Areas. We have indicated on Drawing BGC1/101 Belsize Lane /TPP Rev.0 an area which should be used for storage of materials. We understand that instructions have been given that materials should be stored inside the building and we consider this acceptable. The front yard may provide additional storage.

#### 3.12. Scaffolding

3.12.1. If erected and maintained without due care, scaffolding and operations carried out from it may be damaging to trees. Guidance for the erection and use of scaffolding within Root Protection Areas, including ground protection is shown at Appendix B of this report.

#### 3.13. Installation of hard-surfacing, footpaths, etc.

3.13.1. A small amount of paving will fall within the Root Protection Area of Tree 1. This has been calculated as being 3% of the Root Protection Area. The installation of paving within Root Protection Areas may, if not properly specified, involve root loss and soil compaction. Any such construction should be in accordance with the suggestion shown at Figure 3 and Specification A at Appendix B of this report where indicated on Drawing BGC1/101 Belsize Lane /TPP Rev.0.

#### 3.14. Timing and control of operations

3.14.1. It is imperative that tree protection measures, in particular the installation of fencing and protective surfaces are put in place before any works are undertaken.

3.14.2. It is essential that supervisory staff are aware of the need for tree protection during the works and that tree protection measures are brought to the attention of staff during any site induction.

#### 3.15. Specific threats to trees

3.15.1. In addition to generalised threats, a number of specific threats to retained trees on this site have been identified. Such specific threats are summarised below:

- □ **Tree 1** –the construction of the extension to the rear of the house and the construction of a limited area of paving.
- □ **Tree 12** soil compaction





□ **The remaining trees on the site** – general risks associated with construction within a space-limited site.

3.15.2. These are considered at Appendix B, Table 1 of this report, together with suggested measures for the mitigation of any perceived threat. General threats, together with mitigation suggestions are shown at Table 2.

#### 3.16. Tree removals

**3.16.1.** No trees will be removed as a result of this development.

#### 3.17. Tree Protection Method Statement

3.17.1. Threat analyses, together with suggestions for threat mitigation are shown at Appendix B of this report and should be read in accordance with appropriate specifications and figures at Appendix B and with Drawing Reference: BGC1/101 Belsize Lane/TPP/Rev. 0.



## 4. SUMMARY

#### 4.1. General

4.1.1. An assessment of the tree population of this site has been carried out in accordance with the provisions of British Standard 5837 'Trees In Relation To Construction' (2005). This assessment is presented at Appendix A. of this report. A detailed drawing (Drawing Reference: BGC1/101 Belsize Lane/TCP/Rev.0) showing tree retention categories, tree crown radii, reference numbering and root protection areas (described as a circle around each tree) has been prepared and forms an integral part of this document.

4.1.2. The British Standard's guidance requires that development proposals are informed by the suitability for retention of trees inspected, that root protection areas are generally observed and that, where development and the need to retain trees presents conflict, that arboricultural advice be sought.

4.1.3. Appendix B of this report outlines tree protection measures and should be read in accordance with appropriate specifications and figures at Appendix B and with Drawing Reference: BGC1/101 Belsize Lane/TPP/Rev. 0. This drawing also shows the siting of protective fencing and 'no dig' hard surfaces.

Brian G. Crane M.Hort., MI Hort., FLS, Dip.Arb (RFS), F.Arbor A., Dip. Hort. Registered Consultant of the Arboricultural Association

101 belsize lane, london NW3



#### APPENDIX A

#### TREE SURVEY SHEETS

Data have been entered on these sheets as:

- □ Numbered tree reference (based on supplied topographical survey).
- □ Species
- Tree height
- □ dbh Stem diameter (tree stem diameter in millimetres at 1.5 metres above adjacent ground level or immediately above root flare for multi-stemmed trees)
- Crown radii shown to four cardinal points as: N, E, S, W
- □ CBP Height in metres of crown clearance above adjacent ground level (to inform on ground clearance, crown stem ratio and shading)
- □ Age Class (young, middle aged, mature, overmature, veteran)
- □ Wildlife conservation value graded as 1 low to 4 high
- □ Physiological condition (e.g. good, fair, poor, dead)
- □ Structural condition (e.g. collapsing, the presence of any decay and physical defect)
- Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat
- □ SULE estimated remaining contribution in years (e.g. less than 10).
- □ Retention category grading (in accordance with British Standard 5837, 2005).
- RPA Root protection area based on formulae contained in British Standard 5837 'Trees In Relation To Construction' (2005). Expressed in square metres.

Retention category grading defined as:

- Quality Class R: Trees 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 arboriculture management.
- Quality Class A: Trees of high quality and value: in such a condition as to be able to make a substantial contribution.
- Quality Class B: Trees of moderate quality and value in such condition as to make a significant contribution.
- Quality Class C: trees of low quality and value: currently in adequate condition to remain until new planting could be established or young trees with a stem diameter below 150 millimetres.



#### **APPENDIX A - TREE SURVEY DATA**

Location: 101 Belsize Lane, London NW3

Date: November 2008

Surveyor: BGC

| Tree<br>No | Species   | Height | DBH | N   | E   | S   | W   | СВР | Age<br>class | Physio-<br>logical<br>condition | Structural condition and remarks  | Immediate<br>management<br>requirements | SULE | Tree quality assessment | RPA |
|------------|---|--------|-----|-----|-----|-----|-----|-----|--------------|---------------------------------|---|---|------|-------------------------|-----|
| 1          | Weeping ash -<br><i>Fraxinus</i><br><i>excelsior</i><br>'Pendula' | 9      | 49  | 3   | 4   | 5   | 8   | 2.5 | M            | F                               | Could not examine base. Building<br>materials close to trunk. Recent<br>reduction to north. Old pruning<br>wounds in crown. Branch cavity at<br>2 metres to southeast. Basal<br>growth present. Large burr at 1.5<br>metres to north                  |   | 30   | В                       | 109 |
| 2          | English yew –<br><i>Taxus baccata</i>                             | 3      | 14  | 1.5 | 1.5 | 1.5 | 1.5 | 0.5 | М            | G                               | Long term potential. Loose, low-<br>branching form  |   | 50   | С                       | 8.9 |
| 3          | Golden chain<br>– Laburnum<br>anagyroides                         | 10     | 24  | 4   | 3   | 1   | 3   | 2.5 | М            | G                               | Trunk lean. Low branching. Crown<br>forms on three upright stems.<br>Scatter of light dead wood in crown  |   | 30   | В                       | 18  |
| 4          | Horse<br>chestnut -<br>Aesculus<br>hippo-<br>castanum             | 18     | 76  | 6   | 8   | 6   | 4   | 5.5 | M            | G                               | Buttressed roots. Basal growth<br>present. Epicormic growth on trunk.<br>Formerly pollarded at 5 metres.<br>Scatter of light dead wood in crown.<br>Standing on bank or raised ground.<br>Ground level to east considerably<br>lower. Screening value |   | 50   | В                       | 261 |
| 5          | Cherry-plum –<br><i>Prunus</i><br><i>cerasifera</i> type          | 8      | 31  | 5   | 4   | 3   | 3   | 2   | М            | G                               | Multi-stemmed from ground level.<br>Scatter of light dead wood in crown   |   | 30   | В                       | 30  |
| 6          | Cherry-plum   | 9      | 33  | 6   | 4.5 | 3   | 3   | 2   | М            | G                               | Multi-stemmed from ground level.<br>Scatter of light dead wood in crown.<br>Embedded bark junction at 0.5<br>metres   |   | 30   | В                       | 34  |
| 7          | Small-leafed<br>lime – <i>Tilia</i><br>cordata                    | 22     | 72  | 7   | 6   | 7   | 6   | 4.5 | M            | G                               | On boundary. Trunk lean. Trunk<br>fork or division at 4 metres.<br>Formerly pollarded at 12 metres.<br>Scatter of light dead wood in crown.<br>Screening value  |   | 50   | В                       | 235 |



#### **APPENDIX A - TREE SURVEY DATA**

Location: 101 Belsize Lane, London NW3

Date: November 2008

Surveyor: BGC

| Tree<br>No | Species  | Height | DBH | N   | E   | S | W   | СВР | Age<br>class | Physio-<br>logical<br>condition | Structural condition and remarks   | Immediate<br>management<br>requirements | SULE | Tree quality assessment | RPA |
|------------|--|--------|-----|-----|-----|---|-----|-----|--------------|---------------------------------|--|---|------|-------------------------|-----|
| 8          | European lime<br>– Tilia x<br>europaea                             | 20     | 54  | 7   | 5   | 7 | 5   | 4.5 | M            | G                               | Basal growth present. Epicormic<br>growth on trunk. Ivy on trunk.<br>Trunk fork or division at 4 metres.<br>Formerly pollarded at 6 metres.<br>Pruning wounds in crown. Scatter<br>of light dead wood in crown |   | 50   | В                       | 132 |
| 9          | Magnolia –<br>Magnolia x<br>soulangiana                            | 3      | 8   | 3   | 2   | 3 | 0.5 | 0.2 | Y            | G                               | Open form. Long term potential   |   | 50   | С                       | 2.9 |
| 10         | Ornamental<br>cherry –<br><i>Prunus</i> cv.                        | 7      | 25  | 1.5 | 2   | 1 | 1.5 | 2   | М            | F                               | Multi-stemmed from ground level.<br>On neighbouring property. Scatter<br>of light dead wood in crown. Trunk<br>diameter estimated  |   | 20   | С                       | 28  |
| 11         | Purple plum -<br><i>Prunus</i><br><i>cerasifera</i><br>'Pissardii' | 9      | 25  | 4   | 4.5 | 4 | 4.5 | 2   | М            | G                               | Multi-stemmed from ground level.<br>On neighbouring property. Scatter<br>of light dead wood in crown. Trunk<br>diameter estimated  |   | 20   | С                       | 28  |
| 12         | Magnolia<br>grandiflora  | 6      | 14  | 1.5 | 2   | 1 | 2   | 2   | MA           | G                               | On neighbouring property. Trunk<br>wound to south at 1.5 metres.<br>Trunk diameter at 1.5 metres from<br>ground level estimated. Screening<br>value. Considerable long term<br>potential                       |   | 30   | В                       | 8.9 |

101 belsize lane, london NW3



## **APPENDIX B**

#### TREE PROTECTION METHOD STATEMENT

#### ARBORICULTURAL THREAT ASSESSMENT AND RECOMMENDATIONS

#### FOR DAMAGE MITIGATION

#### This Appendix should be read in conjunction with **Drawing reference**: BGC1/101 Belsize Lane/TPP, Rev. 0.

Protective fencing should be erected before any works begin.

All protective fencing and ground protection must remain in place for the full duration of the development.

Where works, such as the installation of non-dig surfaces take place inside a fenced area, the protective fencing should be kept in place whilst the works are carried out.

Protective fencing should be inspected by the site manager weekly and should be repaired as necessary.

The fencing used should be permanent and in accordance with Figure 1 of Appendix B of this report. It should not be of the portable 'Arris' type, unless this is securely fixed to the ground and braced against machinery impact where appropriate.

101 belsize lane, london NW3



# APPENDIX B – TABLE 1 - ARBORICULTURAL THREAT /IMPACT ASSESSMENT

| Tree Nos | Perceived threat                                     | Likely Impact   | Suggested threat management  |
|----------|--|---|--|
| Tree 1   | Construction of foundations                          | <ul> <li>Root loss with possible long term implications for tree health</li> <li>Possible loss of tree stability</li> </ul> | Encroachment into Root Protection Area<br>is approximately 11%, well within 20%<br>parameter detailed in British Standard<br>5837 'Trees In Relation To Construction'<br>(2005).                       |
|          |  |   | Effects on tree health likely to be minimal.   |
|          |  |   | Implications for tree stability considered negligible in view of research on subject.  |
|          |  |   | Extension to be constructed on 'raft'<br>foundation as shown on Drawing 500<br>Revision CO1 by Structurelle Engineers<br>of Bath, dated 6.10.08, entitled New<br>Extension Ground Floor Reinforcement. |
|          | Physical damage to aerial parts during               | Loss of visual amenity  | □ Tree to be protected as shown on   |
|          | the construction process.                            | <ul> <li>Possible implications for long-term<br/>tree health.</li> </ul>  | Lane /TPP Rev. 0 with fencing as specified at Figure 1 of Appendix B.  |
|          |  |   | No tree works to be undertaken without consent of Local Planning Authority.  |
|          | Damage to rooting zone by compaction<br>or intrusion | <ul> <li>Root loss with likely long term<br/>implications for tree health</li> </ul>  | □ Tree to be protected as shown on<br>Drawing reference: BGC1/ 101 Belsize<br>Lane /TPP Rev. 0 with fencing as   |
|          |  | Possible loss of tree stability   | specified at Figure 1 of Appendix B.   |

#### 101 belsize lane, london NW3



101 belsize lane, london NW3



#### APPENDIX B – TABLE 1 - ARBORICULTURAL THREAT /IMPACT ASSESSMENT

| Tree Nos   | Perceived threat   | Likely Impact   | Suggested threat management   |
|--|--|---|---|
| Tree 1   | Construction of paving   | <ul> <li>Root loss with likely long term<br/>implications for tree health</li> </ul>    | <ul> <li>Encroachment into Root Protection Area<br/>less than 3%. Risk considered minimal.</li> </ul>   |
|  |  | <ul> <li>Possible loss of tree stability</li> </ul>                                     | <ul> <li>All paving within Root Protection Area to<br/>be constructed in accordance with<br/>Appendix B, Figure 3, Specification A<br/>and located as shown on Drawing</li> </ul> |
|  |  |   | reference: BGC1/ 101 Belsize Lane<br>/TPP Rev. 0.   |
| Tree 12  | Damage to rooting zone by compaction<br>or intrusion             | <ul> <li>Root loss with likely long term<br/>implications for tree health</li> </ul>    | Tree to be protected as shown on<br>Drawing reference: BGC1/ 101 Belsize<br>Lane /TPP Rev. 0 with fencing as  |
|  |  | Possible loss of tree stability   | specified at Figure 1 of Appendix B.  |
| All other trees on site<br>(see also Appendix B,<br>Table 2) | Physical damage to aerial parts during the construction process. | <ul> <li>Loss of visual amenity</li> <li>Possible implications for long-term</li> </ul> | □ Trees to be protected as shown on<br>Drawing reference: BGC1/101 Belsize  |
|  |  | tree health.  | specified at Figure 1 of Appendix B.  |
|  |  |   | No tree works to be undertaken without consent of Local Planning Authority.   |
|  | Damage to rooting zone by compaction<br>or intrusion             | <ul> <li>Root loss with likely long term<br/>implications for tree health</li> </ul>    | Trees to be protected as shown on<br>Drawing reference: BGC1/ 101 Belsize<br>Lane /TPP Rev. 0 with fencing as   |
|  |  | Possible loss of tree stability   | specified at Figure 1 of Appendix B.  |

101 belsize lane, london NW3



#### APPENDIX B - TABLE 2 - ARBORICULTURAL THREAT /IMPACT ASSESSMENT - GENERALISED TREATS

| Perceived threat  | Likely Impact  | Suggested threat management   |
|---|--|---|
| Soil compaction by machinery<br>Storage of materials          | <ul> <li>Degradation of rooting zone</li> <li>Prevention of ingress of air and water to roots</li> </ul> | <ul> <li>Install and maintain stout fencing to conform to<br/>Appendix B, Figure 1 located as shown on<br/>Drawing reference: BGC1/ 101 Belsize Lane<br/>/TPP Rev. 0.</li> <li>Prohibit all activities within fencing, including<br/>storage of materials.</li> </ul> |
| Damage to aerial parts by plant and machinery                 | <ul><li>Loss of photosynthetic area</li><li>Wounds may facilitate entry of disease</li></ul>             | Install and maintain fencing as above   |
| Poisoning of roots by chemicals                               | <ul> <li>Toxicity - long and short term effects on tree</li> </ul>                                       | <ul> <li>Install fencing as above.</li> <li>Measures to prevent storage of chemical (including fuel) within fencing</li> </ul>  |
| Fires   | Damage to aerial parts and roots   | <ul> <li>Install fencing as above</li> <li>No fires or combustible materials to be within fenced area.</li> </ul>   |
| Loss of aerial parts consequent on pruning to clear obstacles | <ul> <li>Loss of photosynthetic area - resulting loss of vigour in tree</li> </ul>                       | <ul> <li>Minimised by carefully specified and supervised tree surgery.</li> <li>No other pruning to be carried out</li> </ul>   |
| Root loss due to severance                                    | <ul> <li>Severe set-back to tree health. May lead to tree death<br/>and. or instability</li> </ul>       | <ul> <li>No operations involving root severance to be<br/>permitted without specific approval and<br/>agreement with Local Planning Authority</li> </ul>  |



101 belsize lane, london NW3



#### APPENDIX B - TABLE 2 - ARBORICULTURAL THREAT /IMPACT ASSESSMENT - GENERALISED TREATS

| Perceived threat   | Likely Impact  | Suggested threat management   |
|--|--|---|
| Installation of underground services, involving root severance | Severe set-back to tree health. May lead to tree death and. or instability   | <ul> <li>No operations involving root severance to be permitted without specific approval and agreement with Local Planning Authority.</li> <li>All installation of services to be carried out in accordance with National Joint Utilities Council Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG Publications, Volume 4</li> <li>No severance of roots greater than 25 millimetres in diameter.</li> <li>All services to be passed under retained roots.</li> <li>All excavations within crown spread of trees to be by hand.</li> <li>Existing service runs likely to be used.</li> </ul> |
| Erection of scaffolding. work from scaffold                    | <ul> <li>Possibility of aerial damage during erection of scaffolding</li> <li>Deposition of materials, mortar etc. during works</li> <li>Ground compaction. root damage by scaffold</li> </ul> | <ul> <li>Any tree works necessary to clear scaffold to<br/>be carefully specified, agreed with Local<br/>Planning Authority and carried out by<br/>competent tree surgery contractor, working in<br/>accordance with the provisions of British<br/>Standard 3998</li> <li>Ground area below scaffold to be protected by<br/>polythene sheeting during works</li> <li>Scaffold poles to be bedded on to boarding to<br/>spread loading</li> <li>See Appendix B, Figure 2</li> </ul>  |



# APPENDIX B

# Figure 1 – Protective Fencing

For locations see Drawing reference: BGC1/101 Belsize Lane /TPP Rev. 0.



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

6 Wire twisted and secured on inside fence of fencing to avoid easy dismantling

7 Ground level

8 Approx 0.6m driven into the ground



APPENDIX B - Figure 2

#### Erection of scaffolding within Root Protection Areas - see Drawing reference: BGC1/101 Belsize Lane /TPP Rev. 0.



**Rev**.0

101 belsize lane, london NW3



# **APPENDIX B - Figure 3**

# No dig construction of pedestrian paving

# For location see orange cross-hatched area on Drawing BGC/101 Belsize Lane/Rev. 0



TO SHOW TREATMENT FOR ROOTS OVER 50mm DIAMETER



TO SHOW METHOD OF LAYING SLOT-PERFORATED ENGINEERING BRICKS



TO SHOW EDGE OF HAUNCHING FOR HARD SURFACE



## APPENDIX B

#### **SPECIFICATION A**

#### Suggested specification for paving construction near trees

#### See also figure 3 of this Appendix

No excavation should be carried out to effect the installation of paving within Root Protection Areas. In this instance, much of the paving shown on Drawing BGC/101 Belsize Lane/Rev. 0 is a replacement for existing paving and construction should not go below existing levels.

If necessary, kill ground vegetation using a translocated herbicide such as glyphosate. Gather up the dead organic material, this will prevent the build up of anaerobic conditions beneath the construction which might otherwise occur as vegetation begins to decompose.

Remove major protrusions such as rocks.

Fill major hollows with sharp sand.

If necessary, construct an edging with boards attached to pegs driven into the ground through the geotextile fabric. Pegs should be long enough to give sufficient support for the construction.

