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# Arboricultural and Planning Integration Report: The Coach House, Bury Lane, Rickmansworth, Hertfordshire

3rd June 2009

Ref: GHA/DS/232:09

**CONTENTS**

# Arboricultural Report

Location: The Coach House, Bury Lane, Rickmansworth, Hertfordshire
Ref: GHA/DS/232:09
Client: Dusek Design Associates
Date: 3rd June 2009
Report Prepared by: Glen Harding Tech Cert (Arbor.A)
Date of Inspection: Thursday 16th April 2009

*Please note that abbreviations introduced in* [Square brackets] *may be used throughout the report.*

**Instructions**

**Issued by – Andy Tyrel of Dusek Design Associates**

**TERMS OF REFERENCE – To survey the subject trees in order to assess their general condition and to provide a planning integration statement for the indicative proposed development that safeguards the long term well being of the retained trees and plans tree planting in a sustainable manner.**



**Executive Summary**

The proposal for the site is to demolish the existing office complex, and rebuild a new structure on a slightly larger overall footprint. The scheme includes some amendments to the car park layout. The proposed scheme requires the removal of a small number of relatively insignificant trees and shrubs, which will not significantly impact the local or wider landscape. The retained trees require protection in accordance with industry best practice and BS 5837: 2005 – Trees in relation to construction in order to ensure their longevity.

## Documents Supplied

Andy Tyrel of Dusek Design Associates supplied the following documents:

1. Existing / proposed layout (Ref: no ref)

## Scope of Survey

1.1 The survey is concerned with the arboricultural aspects of the site only.

1.2 The planning status of the trees was not investigated in detail.

1.3 A qualified Arboriculturist undertook the report and site visit and the contents of this report are based on this. Whilst reference may be made to built structure or soils, these are only opinions and confirmation should be obtained from a qualified expert as required.

1.4 Trees in third party properties were surveyed from within the subject property, therefore a detailed assessment was not possible and some (if not all) measurements were estimated.

1.5 No discussions took place between the surveyor and any other party.

1.6 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breleor (The body language of tree, DoE booklet Research for Amenity Trees No. 4, 1994)

1.7 The survey was undertaken in accord with British Standard 5837: 2005 Trees in relation to construction – Recommendations (BS5837).

1.8 Pruning works will be required to be in accord with British Standard 3998:1989 Tree work (BS3998).

1.9 Underground services near to trees will need to be installed in accord with the guidance given in BS5837 together with the National Joint Utilities Group Booklet 4: 2007 Guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG4).

1.10 Where hard surfacing may be required in close proximity to trees, BS5837 : 2005 and the principles of Arboricultural Practice Note 12: Through the Trees to Development (AAIS) 2007 (APN12) with regards to "no dig" surfacing will be employed, although incorporating improvements with the construction methods.

1.11 Reference is made to the National House Building Council Standards, 2003, chapter 4.2: Building near trees (NHBC).

1.12 The client's attention is drawn to the responsibilities under the Wildlife and Countryside Act (1981).

**Survey Method**

2.1 The survey was conducted from ground level with the aid of binoculars.

2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.

2.3 No soil samples were taken.

2.4 The height of each subject tree was estimated using a clinometer.

2.5 The stem diameters (SD) were measured in centimetres at 1.5 metres above ground level for single stems, and just above the root flare for multistemmed trees. Where access was difficult the diameters were estimated.

2.6 The crown spreads were measured with an electronic distometer. Where the crown radius was notably different in any direction this has been noted on the Plan (appendix A), or in the tree table (Appendix B).

2.7 The Root Protection Area (RPA) for each tree is included in the tree table, both as an area, and as the radius of a circle.

2.8 All of the trees that were inspected during the site visit are detailed on the plan at Appendix A. Please note that the attached plans are for indicative purposes only, and that the trees are plotted at approximate positions. The trees on this plan are categorised and shown in the following format: COLOUR CODING AND RATING OF TREES:

Category A – Those of a high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested). Colour = light green crown outline on plan.

Category B – Those of a moderate quality and value: those in a condition as to be able to make a significant contribution (a minimum of 20 years is suggested). Colour = mid blue crown outline on plan.

Category C – Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm. Colour = uncoloured crown outline on plan.

Category R – Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management. Colour = red crown outline on plan.

The crowns of those trees that are proposed for removal, or trees where the crown spread is deemed insignificant in relation to the proposed development are not always shown on the appended plan; however their stem locations are marked for reference.

All references to tree rating are made in accordance with British Standard 5837 'Trees in relation to construction – Recommendations' 2005, Table 1 (section 4.3.1).

## The Site

3.1 The site is located on Bury Lane, a residential through road located within Rickmansworth town Centre.

3.2 A good tree cover is present on the site itself as well as adjacent sites, with many semi-mature and mature trees of both native and exotic origin characterising the local area.

3.3 Access to the property is currently gained via a driveway to the front (North West) of the site.

## The Subject Trees

4.1 The details of the subject trees are set out in the Schedule at Appendix B. The overall quality of the trees is good.

4.2 Of the nine individual trees surveyed, four have been assessed as BS 5837 category B; with the remaining five trees being assessed as BS 5837 category C.

## The Proposal

5.1 The proposal for the site is to demolish the existing office complex, and rebuild a new structure on a slightly larger overall footprint.

5.2 The scheme includes some amendments to the car park layout.

5.3 The proposed location of the above structures can be seen on the attached plan, however the lightweight structures such as the bin store(s) and paths etc... may be liable to minor change as construction commences, in agreement between the Local Planning Authority and the applicant.

## Arboricultural Implication Assessment

TREE REMOVAL / RETENTION

6.1 The proposed site layout, and all of its associated structures allow for the healthy retention of all of the important trees (those of BS5837 A or B grading) on the site itself, and within nearby adjacent sites; therefore the arboricultural landscape character of the site will be retained. Those C category trees that are at suitable positions in relation to the proposal have also been specified for

retention. The following trees will therefore be retained, and protected during development works:

T1, T5, T7, T8 and T9

6.2 The following trees are proposed for removal as part of the new development, as these specimens could not be effectively retained, due to their position in relation to the new structure(s):

T2, T3, T4 and T6

6.3 All of the trees to be removed have been given a C category grading in accordance with BS 5837. It is therefore felt that these trees should not act as a limitation on the effective use of the site, or impose any significant constraints on the layout (see table 1 BS5837).

6.4 The assessed grading of each of the trees to be removed (as per BS5837 table 1), as well as any relevant comments on their condition can be seen in the tree table at appendix B.

TREE PRUNING TO ACCOMODATE THE PROPOSAL OR ACCESS TO THE SITE

6.5 The implementation of the proposal does not lead to the requirement to prune any of the retained trees, or shrubs.

6.6 The upper canopy of T5 overhangs the Southern end of the proposed new building. This end of the new building will be similar in dimension, though slightly smaller, and further from the tree than the existing structure. The new building will also have the same roof height. This mature tree has adapted its canopy around the existing building as it has matured, therefore, subject to careful working practices; there will not be any requirements to undertake any additional pruning to this tree to accommodate the new building superstructure.

6.7 The retained limbs of T5 that grow towards the new structure should be wrapped in hessian to protect them from direct damage during construction works.

ASSESSMENT OF RETAINED TREES ROOT PROTECTION AREAS

6.8 Section 5.2.4 b) of BS 5837: 2005 states that the Root Protection Area (RPA) of each tree should be assessed by an arboriculturalist considering the likely morphology and disposition of the roots, when known to be influenced by past or existing site conditions.

6.9 From a plan perspective, there is a minor encroachment into the RPA of T5. However, when assessing the RPA of this tree based on the existing site factors, it is apparent that the proposed development will not have a significant impact on the health of this tree, or cause any damage to its roots.

The building has been in situ for many years, and as such the roots of this tree will have developed around the structure and its footings, with a low possibility of any significant roots being present beneath the existing foundations. The conditions beneath the existing structure will <u>not</u> be conducive for root growth,

as little falling rain water will have penetrated to this area of soil. As the Southern end of the building will be constructed on a smaller outline than the existing structure, no additional excavations will be required in this area.

6.10 The applicant proposes the use of piled footings, which can be utilised to avoid damage to any errant roots that may have grown beneath the existing structure. The location of the supporting piles is easily changeable should any larger roots (over 25mm) be discovered once works commence.

6.11 BS 5837: 2005 Section 11.6 supports the use of specialised piled foundations within the RPA:

**11.6.1**

" The insertion of structures within the root protection areas may be justified if this allows the retention of a good quality tree (category A or B). However, it is essential that careful consideration is given to the foundation design (see **11.6.2**). In such cases, the use of a traditional strip footings, in particular those constructed tangentially across the root zone, can result in severe damage to the tree roots and should be avoided."

**11.6.2**

"Root damage can be minimised by using a combination of the following:

- Piles or radial strip footings both of which should be located to avoid major roots.

- Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots.

In order to arrive at a suitable solution, site specific and specialist advice regarding foundation design should be sought from an Arboriculturalist and Engineer."

Details of how the piled footing should be installed can be seen at section 8.5, as well as appendix E.

6.12 The proposed new building(s) are situated outside of the RPA's of all of the trees proposed for retention, therefore these trees pose no below ground constraints on the new buildings or vice versa.

PROPOSED ACCESS TO THE NEW DEVELOPMENT

6.13 Sections of the new parking are in proximity to some of the retained trees. It is likely that many of these bays will be constructed where hard surfacing already exists. If however any new areas are installed near the retained trees, it is essential that the design of this area is planned so as to cause minimal disruption to these trees. An "up and over" style construction will be necessary, to ensure that all existing ground levels are retained in their current form, as well as ensuring that satisfactory moisture and oxygen can be obtained from the underlying soil by any tree roots in this area. A design for this proposed access route must be drawn up by a structural engineer, in close co-ordination with the

retained arboriculturalist. A preliminary method statement has been included at 8.7.

GENERAL

6.14 The protective measures as detailed in section 8 will ensure that no significant root severance or soil compaction / erosion occurs near the retained trees.

6.15 The methodology set out within section 8 of this report, must be adopted and adhered too, in order to ensure the healthy retention of all of the retained trees.

**Post Development Pressure**

FUTURE TREE AND STRUCTURE RELATIONSHIPS

7.1 The retained trees are at a satisfactory distance from the proposed new building, and highly unlikely to give rise to any inconvenience.

7.2 The proposed building will be located in a similar location to the existing structure, where the current users have enjoyed a satisfactory juxtaposition between the nearby trees and building for many years.

7.3 There is a slight overhang of the new building from the crown of T5. The defining branch structure of this tree is however well clear of the proposed upper building line, and as such this will not be of major concern to future occupants or users.

7.4 Problems with future leaf fall can be readily overcome with the use of devices such as gutter guards.

7.5 Some minor lateral pruning of the retained trees and shrubs may be required in the medium term, however any such work would not have a significant impact on the health or amenity value of these trees.

7.6 The BS3998:- 1989 – Recommendations for Tree Work discusses and endorses various methods of pruning that can alleviate the minor inconveniences trees can cause, whilst retaining them in a healthy condition. Methods such as crown reductions (section 13.4) partial or whole, crown lifting (section 13.5) and crown thinning (section 13.6) can be used to both increase light to properties, as well as improve clearances from buildings. Trees in towns are often sited in close proximity to buildings; however residents concerns can be readily appeased with the implementation of regular, well-planned, sensitive pruning.

7.7 The recommendations for tree retention have been made with due consideration to BS 5837 : 2005 section 3.1.1

**3.1.1**

"Trees can occupy a substantial part of a new development and because of their potential size can have a major influence on the planning and use of the site.

Existing trees of good quality and value can greatly enhance new development, such as by providing an immediate appearance of maturity. However trees can also be a constraint. Layouts sited poorly in relation to retained trees, or the retention of trees of an inappropriate size or species may be resented by future occupiers and no amount of legal protection will ensure their retention and survival. To avoid such problems and to ensure a harmonious relationship between trees and structures, careful planning and expert advice is needed on their juxtaposition".

7.8 Regular inspections of the retained trees by a suitably qualified Arboriculturalist and subsequent remedial works will ensure that the trees are maintained in a suitable manner, to exist in harmony with the new structures and its occupants for many years to come.

REMEDIATION / REPLACEMENT PLANTING AND SOFT / HARD LANDSCAPING

7.9 An assessment of suitable planting sites within the proposed development area confirms that the loss of trees discussed in section 6.2 can be addressed by the planting of new trees that would complement the existing landscape.

7.10 Any new trees that are planted should be selected to ensure they do not become a nuisance and that the level of routine maintenance is low.

7.11 The soil type may require the guidance of NHBC as far the building foundations are concerned. Clearly the planting schedule must be available to assist with foundation design, but any potential for subsidence damage in the future will be designed out.

7.12 All new pathways and soft landscaping areas within the Root Protection Areas (RPA's) of the retained trees should be designed using no-dig, up and over construction and in close co-ordination with the retained Arboriculturalist using porous materials.

## Tree Protection Measures and Preliminary Method Statement for Development Works

8.1 TREE PRUNING / REMOVAL

Where any tree work is needed, this work will be in accordance with British Standard 3998 : 1989 – Recommendations for tree work. The requirement for such work may be ongoing, however will not have a significant impact on the landscape. A list of all of any tree works that are required (including trees to be removed) is included in the tree table at Appendix B.

8.2 TREE PROTECTION BARRIERS

It is essential for the future health of the trees to be retained on site, that all development activity is undertaken outside the root protection zone of these trees, whenever this is practical. The position of the proposed protective fencing for the site is shown on the plan 'Appendix A' by a pink line. The position of the

fence is to be marked out with biodegradable marker paint on site and agreed with appropriate representatives from the LPA and contractor. The fencing will be erected **prior** to any works in the vicinity of the trees and removed only when all development activity is complete. The protective fencing will be as (or similar and fit for purpose) that shown in BS 5837 Figure 2 (see Appendix C).

The Fence must be marked with a clear sign reading:

**"Construction Exclusion Zone – Keep Out".**

8.3 REMOVAL / DEMOLITION OF THE EXISTING STRUCTURES

Prior to the new buildings construction commencing, the existing buildings will need to be removed. This work must all be undertaken by hand when within the root protection areas of retained trees, with the supervision of the retained arboriculturalist and / or the site manager. The removed material must be stored outside of the RPA of all of the retained trees whilst work commences. Any hard standings which currently support the buildings may need removing in full. These bases must be broken up using a small, lightweight "kango" drill into pieces that can be lifted by hand and removed. If during the work, any roots from the retained trees are discovered in excess of 25mm, the retained arboriculturalist must be contacted immediately to assess the roots and arrange subsequent working methods that will cause no damage to the tree(s).

8.4 GROUND PROTECTION / SCAFFOLDING WITHIN THE RPA

Where the edge of the RPA is close to building works, and fencing as discussed in 8.1 is not feasible, scaffolding will be installed as per figure 3 of BS5837. Where areas are proposed for construction access within the RPA ground protection will be installed. This will be similar to figure 3 of BS5837 (other appropriate methods may be used dependant on phasing of construction work etc..). The areas where this is required are outlined in orange hatching on the plan. The details of one proposed technique for this can be seen at Appendix D, an extract from BS5837 - 2005.

8.5 IMPLEMENTATION OF THE NEW BUILDING ON A "RAFT STYLE" FOUNDATION WITH ASSOCIATED PILES

The new raft and pile foundation will be used for the entirety of the new structure; however the following principles will only apply when working within the RPA's of the retained trees: The locations of the supporting piles is easily changeable, and the exact locations for them will be confirmed following hand excavated, trial digs of the top 600mm of each potential hole (this is where the majority of roots exist). These trial digs will be attended by the retained arboriculturalist and site manager. Any roots discovered in these trial pits in excess of 25mm diameter will immediately signal the requirement for a change of location. The soil from these potential "failed" locations will be hand firmed into its original position. The operatives excavating these trial holes will use only hand tools and gain access on foot with no heavier plant equipment being used until the ground is adequately protected, and the final locations agreed. Scaffolding boards secured on top of plastic sheeting or a similar construction as that detailed in 8.2 should be placed over the working area whilst the deeper piling of the final locations commences, with the use of a lightweight rig. This will alleviate the possibility of excessive compaction or erosion within the RPA's. The "bare" soil should not be worked on until the area required is covered in the above manner; however access may be gained initially to implement the above

control measures. The retained arboriculturalist will closely supervise this section of the work. Details of a commonly used piled footing system can be seen at appendix D.

8.6 ROOT PRUNING

Where any root pruning is required, this work will be in accordance with British Standard 3998 : 1989 – Recommendations for tree work. Any such root pruning should be undertaken by the retained arboriculturalist.

8.7 NO DIG SURFACING CONSTRUCTION METHOD IN ACCORDANCE ARBORICULTURAL PRACTICE NOTE 12 AND BS: 5837

The sections of the new parking that are within the RPA's of the retained trees, should be constructed as follows.

METHODOLOGY:

- Eradication of all existing ground vegetation must be undertaken using a translocated herbicide. Any product used for this purpose must be selected to ensure that it will not have an adverse affect on the health of the retained trees, and carried out by a suitably trained operative.

- Any major protrusions within the soil must be removed, such as large rocks or existing tree stumps. Any holes should be filled with sharp sand. **DO NOT GRADE OFF HIGH SPOTS.**

- Lay a geotextile membrane over the entire area to be protected.

- Construction of the edging of the area is to be implemented with the use of vertical steel pegs driven into the ground at intervals of 500mm with side supports firmly attached. **CHECK FOR UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF SUCH WORK.**

- The three dimensional cellular confinement system (e.g cellweb or similar) must be cut to size and placed within the pre-prepared area. This area must now be filled with a no-fines aggregate infill. This must then be compacted to avoid the possibility of future "rutting".

- Lay a final layer of the geotextile membrane on top of this surface.

- A porous material can now be placed on top to complete the construction.

**N.B. An engineer will prepare the exact specification in agreement with the retained Arboriculturalist and Local Planning Authorities Arboricultural Officer.**

8.8 DELIVERY AND STORAGE OF BUILDING MATERIALS

Due to the limited on-site storage space, it may be necessary for bulk deliveries to be split into smaller deliveries.The use of a "just in time" delivery method can also be adopted to reduce the time materials are stored on site before use.

8.9 SITE HUTS, WELFARE FACILITIES AND STORAGE OF EQUIPMENT, MATERIALS AND CHEMICALS
All site huts will be positioned outside of the retained trees RPA's.

8.10 MIXING OF CONCRETE
All mixing of cement / concrete must be undertaken outside of the RPA of all of the retained trees.

8.11 USE CRANES, RIGS AND BOOMS
Precautionary measures must be observed to avoid contact of any retained trees when manoeuvring cranes rigs or booms into position.

8.12 INCOMING SERVICES AND SOAKAWAYS
Underground services near to trees will need to be installed in accord with the guidance given in BS5837 together with the National Joint Utilities Group Booklet 4: 2007 Guidelines for the planning, Installation and maintenance of utility services in proximity to trees (NJUG4).

8.13 ON SITE SUPERVISION
A detailed supervision programme will be devised by the developer and retained Arboriculturalist, ensuring that Arboricultural supervision is present at the appropriate periods during construction. It is therefore deemed necessary for the retained arboriculturalist to visit the site at the following critical points:

- Following tree pruning to ensure work is completed to the correct specification. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer.**

- Erection of protective fencing to ensure it is constructed to the correct specification at the required proximity to ensure the healthy retention of the trees. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer.**

- Installation of the ground protection to ensure it is constructed to the correct specification at the required proximity. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer.**

- Demolition of the existing building(s) to ensure no damage occurs to the retained trees. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer.**

- In addition to the above, random inspections of the site may also be undertaken during construction to ensure the Arboricultural responsibilities are being fulfilled by the developer. A full, written assessment of each visit will be sent the Local Panning Authority and copied to the developer at the expense of the applicant. Any issues relating to tree protection will subsequently be addressed immediately.

8.14 OTHER TREE PROTECTION PRECAUTIONS

- No fires lit on site within 20 metres of any tree to be retained.
- No fuels, oils or substances with will be damaging to the tree shall be spilled or poured on site.
- No storage of any materials within the root protections zone.

8.15 HARD / SOFT LANDSCAPING NEAR RETAINED TREES

All new pathways and hard landscaping areas within the Root Protection Areas (RPA's) of the retained trees should be designed using no-dig, up and over construction techniques, and be specified in close co-ordination with the retained Arboriculturalist. Porous materials should also be used when surfacing near the trees. No machinery will be used for this work, which must all be done by hand.

8.16 LEVEL CHANGES

No level changes should occur within the root protection area of any of the retained trees.

8.17 TREE PLANTING

Any new trees should be of a minimum 14/16 cm girth and purchased from a reputable nursery. Tree planting should be undertaken between the months of November and March by a suitably experienced contractor. The scheme should include the implementation of an aftercare package to include: weed management, tree hydration, stake and tie maintenance, replacement of any failures, mulching and formative pruning.

8.18 DISMANTLING PROTECTIVE BARRIERS

Protective barriers must only be completely removed when all machinery, and equipment has left site. A minimum of seven days notice must be given to the local planning authority prior to dismantling works begin.

## Conclusion

9.1 In conclusion, the principal arboricultural features within the site can be retained and adequately protected during development activities.

9.2 Subject to precautionary measures as detailed above, the proposal will not be injurious to trees to be retained.

9.3 There will be no appreciable post development pressure, and certainly none that would oblige the council to give consent to inappropriate tree works.

9.4 New trees and shrubs can be planted following approval from the Local Planning Authority to ensure a sustainable tree stock for the future.

**Recommendations**

10.1 The site works should progress as follows to ensure the healthy retention of the trees.

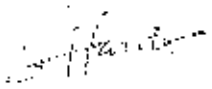
a. Tree works, in accordance with BS3998
b. Installation of all tree protection measures.
c. Construction.
d. Soft landscaping.

10.2 Site supervision – An individual e.g. the Site Agent, must be nominated to be responsible for all arboricultural matters on site. This person must:

a. Be present on the site the majority of the time.
b. Be aware of the arboricultural responsibilities.
c. Have the authority to stop any work that is, or has the potential to cause harm to any tree.
d. Be responsible for ensuring that all site personnel are aware of their responsibilities towards trees on site and the consequences of the failure to observe those responsibilities.
e. Make immediate contact with the local authority and / or retained arboriculturalist in the event of any related tree problems occurring whether actual or potential.

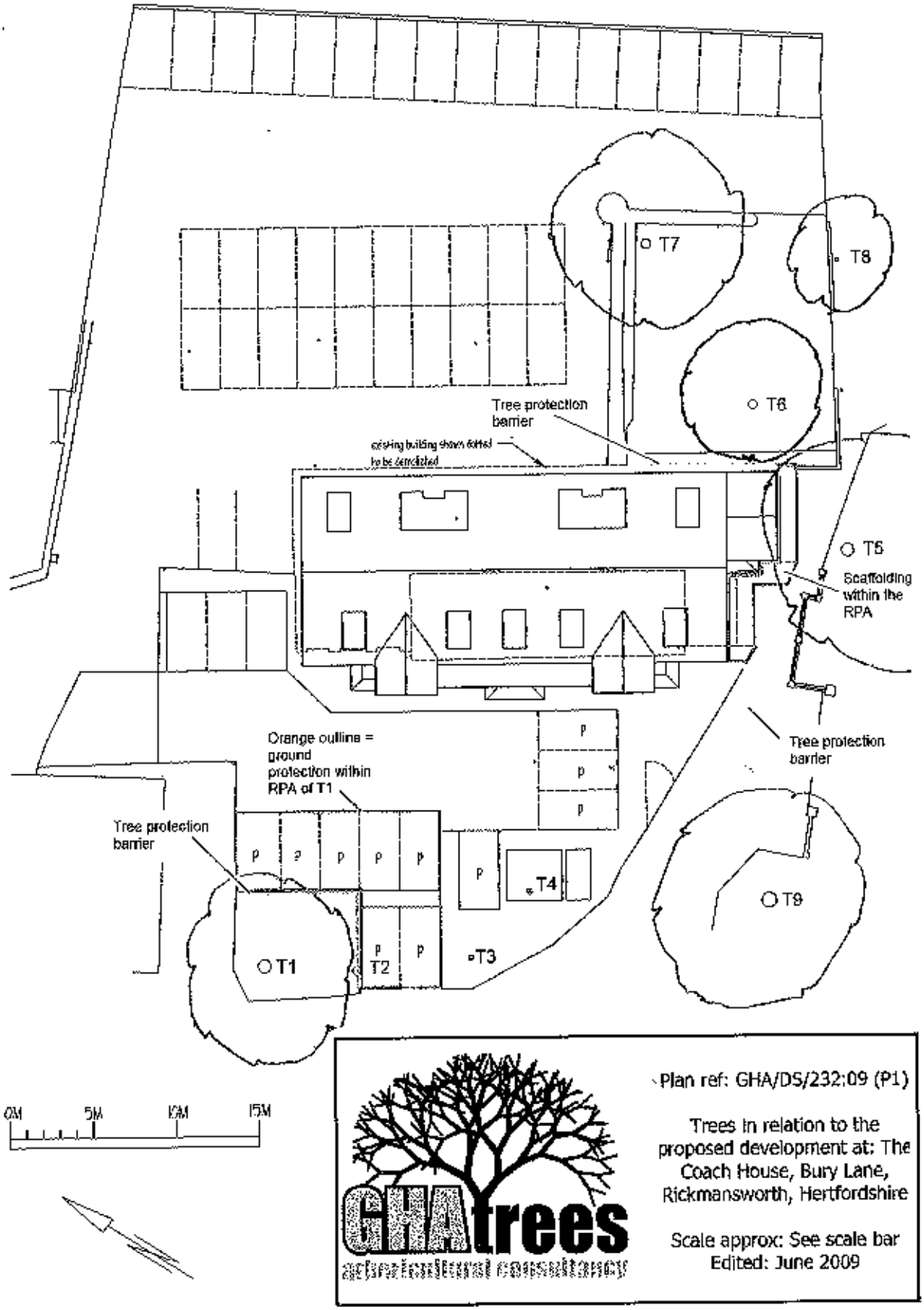
10.3 It is recommended, that to ensure a commitment from all parties to the healthy retention of the trees, that details are passed by the architect or agent to any contractors working on site, so that the practical aspects of the above precautions are included in there method statements, and financial provision made for these.

3rd June 2009
Signed:



Glen Harding
For and on behalf of GHA Trees 01753643760 / 07884056025

# Appendix A


T7
T8
T6
Tree protection barrier
existing building shown dotted to be demolished
T5
Scaffolding within the RPA
Tree protection barrier
Orange outline = ground protection within RPA of T1
Tree protection barrier
T4
T9
T1
T2
T3
0M
5M
10M
15M
GHAtrees
arboricultural consultancy
Plan ref: GHA/DS/232:09 (P1)
Trees in relation to the proposed development at: The Coach House, Bury Lane, Rickmansworth, Hertfordshire
Scale approx: See scale bar
Edited: June 2009

# Appendix B

| Tree No. | Tree species | Height (m) | Multi-stem? (Enter MS) | Trunk / stem count dia. (mm) | Radius of RPA if circle | RPA -Root Protection Area sq.m. | Age Class | Branch spread | Height of Crown Clearance (m) | Comments / Recommendations for tree works | Estimated remaining contribution | Assessed BS 5837: 2005 Value category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | Lime | 25 | | 720 | 8.64 | 234.519 | M | See plan | 2 | Previously pollarded at 14m. Ivy prohibited full inspection. Recommend: remove ivy and re-inspect. | 20-40 | B1 |
| T2 | Ash | 7 | | 50 | 0.6 | 1.13097 | Y | See plan | 2.5 | Tree of poor overall form. Recommend: tree to be removed. | 10-20 | C1 |
| T3 | Ash | 10 | MS | 200 | 2 | 12.5664 | Y | See plan | 2 | Tree of limited visual amenity value within the wider landscape. Recommend: tree to be removed. | 10-20 | C1 |
| T4 | Ash | 10 | MS | 300 | 3 | 28.2743 | Y | See plan | 2.5 | Tree of limited visual amenity value within the wider landscape. Recommend: tree to be removed. | 10-20 | C1 |
| T5 | Sycamore | 23 | | 500 | 6 | 113.097 | M | See plan | 3 | Full inspection not possible due to restricted access. | 20-40 | B1 |
| T6 | Lime | 22 | | 580 | 6.96 | 152.184 | M | See plan | 2.5 | Poorly sited tree. Recommend: tree to be removed. | 20-40 | C1 |
| T7 | Lime | 22 | | 610 | 7.32 | 168.334 | M | See plan | 2 | No significant defects noted during inspection. | 20-40 | B1 |

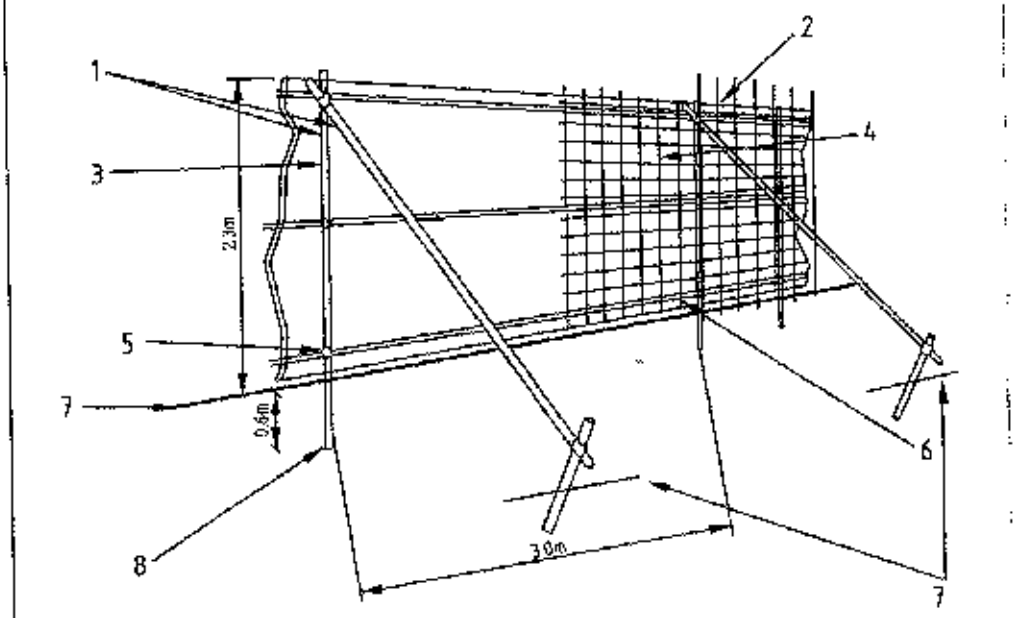
| Tree No. | Tree species | Height (m) | Multi-stem? (Enter MS) | Trunk / stem count dia. (mm) | Radius of RPA if circle | RPA -Root Protection Area sq.m. | Age Class | Branch spread | Height of Crown Clearance (m) | Comments / Recommendations for tree works | Estimated remaining contribution | Assessed BS 5837: 2005 Value category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T8 | Sycamore | 10 | | 160 | 1.92 | 11.5812 | MA | See plan | 2 | No significant defects noted during inspection. | 10-20 | C1 |
| T9 | Horse chestnut | 22 | | 1000 | 12 | 452.389 | M | See plan | 2.5 | Full inspection not possible due to restricted access. | 20-40 | B1 |

KEY :
Tree No: Tree number (T= individual tree, G= group of trees, W= woodland)
Crown = the leaf bearing part of the tree
Diameter: MS = Multi-stemmed
Age class: Young (Y), Middle aged (MA), Mature (M), Over mature (OM), Veteran (V)
Height (Ht): Measured in metres +/- 1m

# Appendix C

**Extract from British Standard 5837: 2005, Trees in relation to construction**

Figure 2. Indicated framework support as the usual method of support for steel mesh panels ('Heras'). Some variation as described in the Report text can be employed if appropriate




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 face of fencing to avoid easy dismantling
7 General level
8 Approx. 0.6 m driven into the ground

**Figure 2 — Protective barrier**

# Appendix E

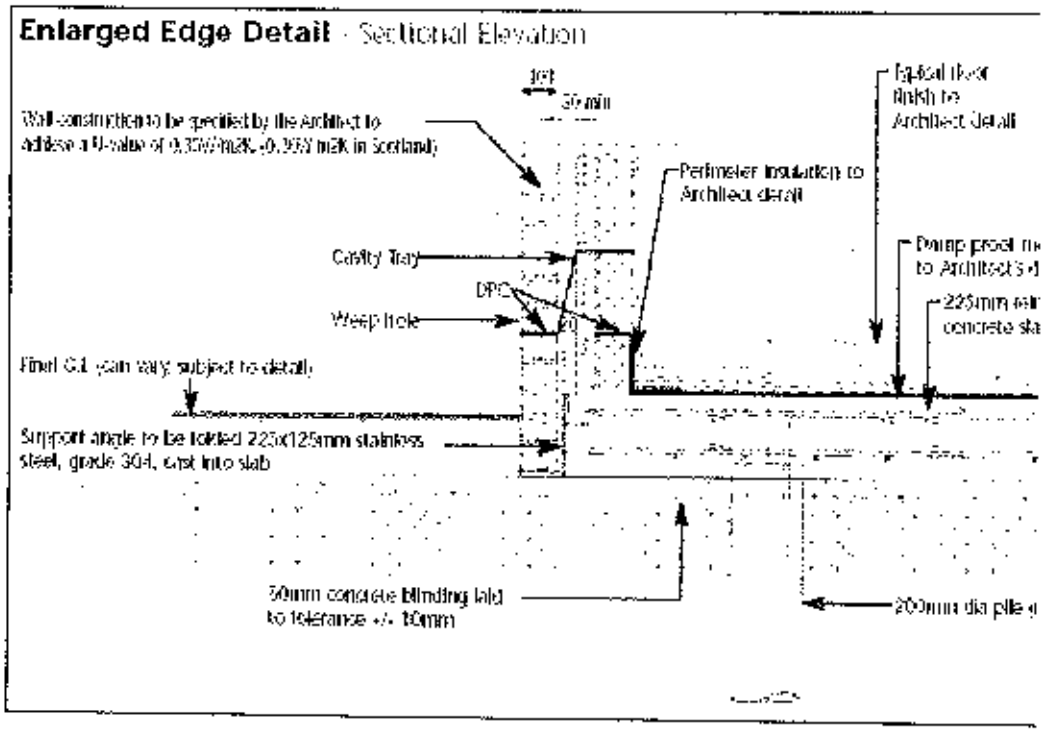
## HouseDeck

**Housedeck** is a piled raft foundation system offering a range of solutions to suit a wide variety of ground conditions and house design requirements. It is available through the **Abbey Pynford** PLC company, based in Watford, Herts, UK.

It is a system which is very useful for building near trees due to its flexibility in pile placement and the fact that the traditional 'trench an fill' method of foundation is not required. It uses a system of small diameter (200-300mm) concrete columns (piles) driven deep into the ground which then support a 'cast concrete cap' which consists of the floor and ground bearing beams. This is reinforced with steel and can also incorporate a stainless steel lip to enable brick elevations to 'sit' to the side of the foundation and thus hide the concrete base.

For use near trees the lack of a foundation trench is advantageous. A typical trench needs to be 1m + in depth and will usually need to be under all elevations. As most tree roots occupy the upper 600mm of soil, mass root severance will often occur. The base of the HouseDeck system sits on the ground surface and uses the piles for support so root severance will be less. Further safeguards can be employed to control excavation in difficult situations by using a method statement to minimise root damage. For example, carrying out initial exploratory excavation to a depth of 1m at those proposed piling positions which are particularly close to the trees. If large roots are encountered then the pile position can be changed slightly.

- A few of the benefits of using HouseDeck.
    - You avoid many problems associated with excavations, unstable ground, bad weather and ground water.
    - As there are no excavations there are no large items of plant required.
    - Housedeck piling rigs are small, maneuverable and designed to work in confined spaces.
    - Housedeck allows you to work closer to trees.


Enlarged Edge Detail - Sectional Elevation
50 min
Wall construction to be specified by the Architect to
Perimeter insulation to
Architect detail
Cavity Tray
DPC
Weep hole
Final G.L (can vary subject to detail)
Support angle to be bolted 225x125mm stainless
steel, grade 304, cast into slab
50mm concrete blinding laid
to tolerance +/- 10mm