Connick Tree Consultants
Specialists in Arboricultural Assessment

DEVELOPMENT SITE - AIA
(Individual Tree Assessment - BS5837)

Joseph Blackwell  ND. Arb
New Pond Farm, Woodhatch Road, Reigate, Surrey, RH2 7QH
Telephone 01737 779191  Facsimile 01737 765775
e-mail:jblackwell@connick-tree.co.uk  www.connick-tree.co.uk

CLIENT: Mr Holt & Ms Elliot, 48 Saxon Road, Worth, West Sussex, RH10 7SB
SITE: Same as above
TREE REPORT

Our Ref: 012-06-902

Name/Address: Mr Holt & Ms Elliot, 48 Saxon Road, Worth, West Sussex, RH10

Site Address: Same as above

Date of Inspection: 14th December 2006

Weather Conditions: Overcast / Mild

Inspection Undertaken by: Joseph Blackwell ND. Arb

1.0 INTRODUCTION

1.1 At the request of Miss Claire Elliott, Connick Tree Consultants have been commissioned to provide advice on the trees to be retained on site, prior to submission of a planning application, in line with the recommendations stated in BS 5837 "Trees In Relation To Construction".

1.2 The client has requested that comments be made on Health & Safety grounds of the condition of the retained trees.

1.3 I confirm that I am a professional member of the Consulting Arborist Society (CAS), a member of the Arboricultural Association (AA), and have attained the National Diploma in Arboriculture.

2.0 BRIEF

2.1 I have undertaken to do the following:

2.2 Visit the site and make a ground level inspection of the external features of the four designated trees.

2.3 Using information derived from 2.1 provide an assessment of current tree condition and of the likely hazard, which the tree may pose to their surroundings through risk of disintegration and/or collapse.
2.0 BRIEF (contd.)

2.4 Submit Arboricultural recommendations intended to reduce any hazard(s) whilst retaining attractive tree cover about the site where feasible.

2.5 This report includes:

(i) Assessment of the health, condition and safety of the designated trees on site.

(ii) Recommendations on the immediate and future management of the tree, based on my assessment of these guidelines, and on my personal experience as an Arboriculturalist.

(iii) Comments regarding the feasibility of retention during the planned construction of a new structure.

(iv) The measures required to be taken to protect the tree using the guidelines stated in BS 5837 'Trees in relation to construction'

3.0 LIMITATIONS

3.1 The inspection was undertaken from ground level only using binoculars to assess the aerial parts.

3.2 No specialised apparatus was employed in the assessment of the condition of the inner timber of the tree.

3.3 At the time of inspection the trees were not in leaf. Leaf size, distribution and colours were therefore not used as indicators of tree health.

3.4 The report and recommendations relate to the condition of the tree and of their surroundings at the time of inspection only.

3.5 All measurements, proportions and assessments of age are approximate.

3.6 I have not contacted the local planning authority personally to determine whether any Tree Preservation Orders (TPO's) cover any of the trees, and / or to determine if the site is in a Conservation Area.

3.7 Before undertaking any Arboricultural works to any of the trees it would be advisable to ascertain whether any of these planning controls are in operation; if they are it would be necessary obtain consent (or in the case of a Conservation Area give six weeks notice of intent) before undertaking any such work.

3.8 The report is of a preliminary nature owing to the time constraint imposed by the client. If further details are required, these will be highlighted in the recommendations.
3.0 LIMITATIONS (contd.)

3.9 I did not examine the soil and/or remove samples for possible analysis as this report is of a preliminary nature. If laboratory testing is required, this will be highlighted in the recommendations and should be undertaken by a qualified Geo-technician.

3.10 The trees were inspected from ground level as this is a preliminary report, should a more detailed climbing inspection be required this will also be highlighted in the recommendations.

4.0 THE INSPECTION

4.1 A careful ground level scrutiny of the trees was undertaken using the appropriate inspection equipment required.

4.2 Random soil samples were not taken at the time of inspection.

4.3 I attach a tree protection plan (TPP) provided by the client (appendix 1) showing the location of the designated trees/hedges on site. This plan also shows the positions of the proposed structure and existing drive within the site.

4.4 The following information is presented on regarding the vegetation:

- Tree number (T)
- Crown radial spread (N/E/S/W in metres)
- Height (metres)
- Trunk diameter (@1.5m)
- Age Class
- Vigour / Potential
- Overall Condition
- Retention category (A1-C3/R)
- Problems / Comments
- Recommendations
- Protective Barrier Distance (m)

5.0 THE SITE

5.1 The topography of the site is generally level.

5.2 The site aspect is shown on the plan (Appendix 1 and 2).

5.3 The designated trees are located on and near to the boundaries of the proposed site.

5.4 The occupancy of the site is occasional use at present but will rise to intermittent throughout the development process and upon completion of the proposed development.

5.5 The ownership of the site is a private residence.
5.0 THE SITE (contd.)

5.6 The landscape type is best described as rural land identified for re-development.

5.7 From the use of sight and touch and in conjunction with geological survey maps, the soil type appears to be sandy clay loam over 'Weald Clay'.

5.8 From visual inspection, there were no pH plant indicators on site to give evidence of soil type or acidity.

5.9 There were no relevant soil or drainage issues at the time of inspection.

5.10 There has been no recent site disturbance by construction or trenching.

5.11 The target uses of the site will be the development under construction and minor entrance traffic to the site.

5.12 The targets could be lowered but the site's usage has been identified for development.

5.13 The tree's exposure's to wind vary between low to moderate as single trees and boundary group plantings.

5.14 Some of the trees located between or near to buildings and may be subject to 'eddy currents' in strong or unusual winds.

5.15 Prevailing wind direction is unknown at present.

5.16 Both of the designated trees were found to be in average health and vigour at the time of inspection.

5.17 Both trees showed few signs of previous management or inspection, and have become quite over grown.

5.18 There was a small amount of ground cover including brambles and weeds up to knee height around the bases of the trees bordering the site.

5.19 The trees were found to contain low amounts of dead and diseased wood.

5.20 There were no significant defect symptoms observed at the time of inspection other than suppression of one of the trees.
5.0 THE SITE (contd.)

5.21 No trees on site were awarded moderate to high amenity status, category (B1-3) due to their Arboricultural and landscape value, screening effect between properties and any structural defects that may have rendered them not worthy of higher grouping. These trees should be retained and well protected throughout the development process.

5.22 Both trees on site were awarded low to moderate amenity status, category (C1-3) these trees are generally of poor to average shape form or possibly have limited potential for inclusion within a development, these trees should be retained were possible within the site.

5.23 No trees on site qualified for the lowest amenity status, category (R), and these trees are generally of poor shape and form, or may be considered dangerous to site workers.

5.24 Some minor facilitation works have been recommended for one of the trees near to the development to ease the development process and to lower the likelihood of damage occurring to that tree. The tree in question T1 has been suppressed over a number of years and is encroaching onto my client’s property the reduction of lateral branches will be necessary at present and in the future to try and improve tree shape and form and give the tree a more upright habit.

6.0 MEASUREMENT CONVENTIONS

6.1 Identification numbers have been scheduled and correspond to the sketch site plan (Appendix 1) Vegetation type has been categorised as one of the following: (T) - Tree, (H) - Hedge, (S) - Shrub, (G) - Group, (ST) - Stump

6.2 Species are listed by Common (botanical) names where appropriate.

6.3 Where possible, measurements have been made in accordance with the conventions detailed below.

6.4 Where this was not possible, due to site conditions or the vegetation being in third party ownership, dimensions have been estimated. When this is the case (*) is recorded after the number.

6.5 Height has been measured to the nearest metre using a clinometer or estimated accurate to within 2m

6.6 Stem diameter has been measured at 1.5m DBH (Diameter at Breast Height) for single stem trees and above the root flare for trees whose crown break below 1.5m both are recorded in centimetres (cm). Where this was not possible the actual height where the diameter was measured was recorded.
6.0 MEASUREMENT CONVENTIONS (contd.)

6.7 Crown radial spread has been measured at north, east, south, and west where possible.

6.8 Age class has been recorded as follows:

Y Young
   A recently planted or establishing tree that could be
   transplanted without specialist equipment, i.e. up to 12 -
   14cms stem girth.

SM Semi-mature
   An established tree but one which has not reached its
   potential ultimate height, and has significant growth
   potential.

M Mature
   A mature specimen with limited potential for any significant
   increase in size but with a reasonable safe life expectancy.

OM Over-mature
   A senescent or moribund specimen with a limited safe life
   expectancy. Possibly also containing significant structural
   defects with attendant safety, and / or duty of care
   implications.

VT Veteran.
   Trees of interest biologically, aesthetically or culturally
   because of their age; trees in the ancient stage of their life;
   trees that are old relative to others of the same species.

6.9 Overall condition has been categorised as good, average, poor, or dead.

6.9.1 The distance between the tree or hedge and the subject property has been recorded to the nearest
   0.5m.

6.9.2 Vigour / potential, to indicate the current vigour level and potential years of useful amenity to the
   site recorded as follows;

   Vigour: Low / Normal          Potential (yrs): or less <10 / 10-20 / 20-40 / 40> or more

6.9.3 The theoretical zone of influence of each tree has not been included. This cannot yet be accurately
   stated and I believe the best estimates should be obtained from the NHBC guidelines (Chapter 4.2
   'Building near trees') where necessary for foundation depths in proximity to trees.

6.9.4 Recommendations for tree management have been based on current Arboricultural best practice as
   set out by the Arboricultural profession and all relevant publications, which when referred to are
   stated in Acknowledgements (see 14.0)

7.0 TREE FINDINGS – Tree Characteristics – T1-2 (See attached survey sheets)

8.0 TREE FINDINGS – Tree Health – T1-2 (See attached survey sheets)

9.0 RECOMMENDATIONS - T1-2 (See attached survey sheets)
10.0 SUMMARY

10.1 Arboricultural recommendations are detailed in the attached survey sheets.

10.2 These should be carried out by an Arboricultural Association Approved contractor in accordance with BS 3998 - 'Recommendations for Tree Work'.

10.3 *Mechanical Damage* by mechanical site clearance may cause direct damage to the roots in what would be the Construction Exclusion Zone (CEZ) in a BS 5837 Development Site recommendations:

10.4 This will result in the wounding and mechanical breakage of tree roots.

10.5 Damage to the roots could leave large surface areas for the entry of oxygen into the tree system plus pathogenic organism entry and development e.g. Honey Fungus (*Armillaria mellea*).

10.6 The roots should be protected by a Construction Exclusion Zone (CEZ) which incorporates the Root Protection Area (RPA) and protective barriers or fencing as detailed within BS: 5837 ‘Trees in Relation to Construction’ (Appendix 3). The limit for area and position of the fencing set by the British Standard taken from table 2 is capped at 707m² or equivalent to a circle with a radius of 15m or a square with approximately 26m sides.

10.7 A geo-textile surface should be laid down within the RPA to protect the roots if at risk from contaminants e.g. diesel, cement, etc.

10.8 Any excavation within the CEZ should be undertaken by hand or with the use of an air spade to avoid / minimise root damage, this operation should be overseen by a qualified arboricultural consultant.

10.9 If roots could not be avoided and needed pruning this should be carried out in accordance with the standards laid down in BS 3998 ‘Recommendations for Tree-work’, again this operation should be overseen by a qualified arboricultural consultant.

10.10 The action needed to retain the trees T1-2 following root damage and aid recovery and minimise crown deterioration would be:

- Undertake appropriate Arboricultural operations.
- De – compact the soil with a suitable device e.g. ‘Terra-vent’
- Add Mychorrizae / Liquid drench Zinc based fertiliser in liquid form to help increase root surface area, aid root recovery and increase water and nutrient uptake.
- Mulch the soil surface with a pine bark wood mulch to a depth of at least 10cm after the soil has been thoroughly re-wetted after sustained periods of rain if appropriate.
- Monitor and inspect the affected trees for recovery or further crown deterioration.
10.0 SUMMARY (contd.)

10.11 The following is a summary of the contents of BS 5837 'Trees on Construction Sites'

**BS 5837 'Trees in Relation to Construction' - Summary:**

BS 5837: if trenching is necessary in and around the tree roots, damage could be caused from severance. This can only be avoided by taking great care in the routing of all underground services. Services should be kept together. Keep detailed plans showing the routing of all services in proximity of any tree.

It is paramount to prevent any compaction of the rooting. Trees need oxygen for their roots to respire. Compaction compresses the air spaces around the roots and causes them to die. Storage of building materials, vehicles or anything potentially toxic should not be in the vicinity of the tree.

The majority of tree roots are in the surface 300-600mm, even shallow excavations can cause damage as can changes in soil levels which may alter the water table.

Excavations for the foundations close to the tree will sever some roots. Care must be taken not to sever a high proportion of major structural roots as this could render the tree unstable. In order to avoid unacceptable damage to the tree as a result of severance or asphyxiation, keep all operations outside the Construction Exclusion Zone (CEZ). All fencing should be in compliance with, Fig. 2, Appendix 4.

Any excavation in and around the root protection area for the purpose of foundations or trenching for services or drainage/sewage should be carried out by hand. If a root is encountered the roots may need to be severed or redirected or a root barrier installed to protect the construction of new buildings. All pruning operations of the roots should be in accordance with BS 3998 ‘Recommendations for Tree-work’. Guidelines for trenching are also contained within NJUG 10.

If it is necessary to erect scaffolding within a protected area, fence in accordance with Fig. 3, Appendix 4

If it is deemed acceptable for construction works to occur closer than the minimum distance, the distance can be offset by 20% although this is only deemed acceptable for individual open grown trees.

At all times, care should be taken not to damage the trunk, branches or foliage. Particular care is needed with delivery vehicles, cranes or mechanical excavators.

Any hard surfaces covering the rooting zone should be preferably permeable to allow precipitation to drain into the soil and maintain oxygen in the soil. A maximum of 20% of the rooting protection area coverage or a three metre wide strip is stated as not being detrimental to the health of the tree(s).

Prevent all leakages or spills into the rooting protection area. Toxic materials can cause root death. Oil, bitumen, diesel, cement, and concrete should all be stored a minimum of 10m from the RPA's. Allow for sloping ground – keep materials downhill of the trees.

If construction is taking place on underlying Shrinkable clay, foundation depth should be increased in accordance with BRE recommendations and NHBC Standards Chapter 4.2, to combat the potential for indirect damage (subsidence) of the proposed building. Engineering solutions should be considered as an alternative to strip foundations to minimise root disturbance/damage, for example Pile/Pad & Beam – suspended floors. Provision should also be made for 'heave' potential on decline or death of a tree.
10.0 SUMMARY (contd.)

The shrinkage potential of the soil on site will need to be assessed from standard classification tests of plastic and liquid limit and plasticity index. These tests are specified in BS 1377. Shrinkage potential based on these tests is given in BRE Digest 240 and NHBC Standards Chapter 4.2

Any remedial damage to the trunk, roots or branches should be remedied by pruning and appropriate treatment in accordance with the recommendations of BS 3998 ‘Recommendations for Tree-work’

Do not light fires within the protected zone or within 5m of the trunk or branches, as this will cause serious damage to the tree, light only on the leeward side.

The recommended distance for protective fencing should be in line with BS: 5837, variations in root disposition may have an effect on fencing distances if it is proven by means of

10.12 The tight dimensions of the site may make working alongside the designated trees challenging. It will be very easy to physically damage the trees, their trunks, buttress’s and root crowns.

10.13 The greatest danger to the tree will be from compaction of the roots by mechanical / physical damage.

10.14 Contamination could be a problem also by cement, diesel, petrol etc.

10.15 Recommended ‘Best Practice Protection’ measures for any site should include:

10.15.1 Lagging of protected trunks or exposed roots with Hussein sacking.

10.15.2 Erecting of a strong scaffold type ‘Special’ fence (Appendix 4)

10.15.3 Provision of a geo-textile protective surface covering for the CEZ (if at risk) to prevent contamination with the use of butting boards where necessary.

10.15.4 The use of pile & beam foundations or similar techniques to minimise root severance during groundwork although all will be judged on individual situation and impact on trees.

10.15.5 A cellular confinement surface will be laid prior to ANY construction, deliveries, or other site works taking place.

10.15.6 Have a consultant Arborist present at the crucial stages of excavation to monitor root protection and if necessary advise on correct pruning of any exposed roots in accordance with BS 3998 ‘Recommendations for Tree work’.

10.15.7 Advise on permeable paving for any covering inside the CEZ after construction and during landscaping of the proposed paved area.

10.15.8 There should be no change in level inside the RPA/CEZ for the trees during or after construction of the building. This will cause root death and ‘Stress’ the tree, leading to its eventual demise.

10.15.9 The installation of the surfaces will have to be undertaken by hand also, no strip trenching should be used.
10.0 **SUMMARY (contd.)**

10.15.10 The construction site layout and access will need to be thought out carefully. The area in which materials can be delivered and stored is minimal, so provision will need to be made for this OUTSIDE the CEZ, not within it.

10.15.11 An Arboricultural method statement for construction works close to the tree could be provided if dictated by the planning conditions. These will layout *when and how* specific works adjacent to the tree will be managed and how the tree will be protected during that operation.

10.16 In theory if excavation was completely undertaken by hand and each root exposed and judged on its measure of importance, they could either be correctly pruned or diverted. This would be an option but may be judged to be extremely time consuming and therefore costly to do.

10.17 Access to the site is will be limited and would be directly from Saxon Road and will make use of the existing cross-over used to enter the front of the site.

10.18 As seen on the developable area plan (appendix 1) a small proportion of the foundations fall inside the RPA of T2, efforts have been made to try and adjust or move the footprint of the building to limit any disturbance to this tree, however the tight dimensions of the plot and confliction with existing third party site lines have restricted any further adjustments.

10.19 If the foundations are to be installed at these distances within the RPA they will have to be excavated by hand taking care not to damage any roots.

10.20 As it will be detrimental to use strip foundations within the RPA it is recommended that pile and beam foundations are used. This technique is far more suited to the situation and minimises root damage, if necessary piles can be placed carefully between roots to avoid severance.

10.21 If a root severance is unavoidable then roots should be carefully assessed by an Arboriculturalist and any severance works should be carried out under best practice as stated earlier in this document.

10.22 As seen on the developable area plan the new driveway falls within the root protection areas of T1 and T2 this can be done without causing unacceptable root damage provided the soil is of sufficient load-bearing capacity, and providing that they are built within current guidelines laid down in APN 1 ‘Driveways Close to Trees’.

10.23 The main theme of these guidelines are that surfaces close to trees or within the tree protection zones should be constructed above existing ground level, to avoid digging and thus severing roots; and that an appropriate ground covering should be used beneath the sub-base, to prevent compaction of the soil in which the roots are growing.

10.24 To achieve this ‘Cellweb’ will need to be incorporated into the driveway design, this is a ‘no dig method’ comprising of a cellular confinement system specifically designed to provide a load transfer blanket over the trees roots, which will almost eliminate vertical loading over the tree roots during and after the development process.
10.0 SUMMARY (contd.)

10.25 The confines of the site will make the construction process challenging, and great thought will need to be taken in advance of site works commencing the majority of works will need to be undertaken from within the footprint of the proposed structure and away from the boundary edges.

10.26 All three major services already exist at the site so there will be no need for trenching within the tree protection zones.

10.27 The Architects in my opinion have gone to great lengths to make the most of the space available at the site as it is quite small and has restricted access.

10.28 The layout of the site has been well thought out in advance, and the positioning of the proposed development suites the constraints of the site.

11.0 PLAN

11.1 The information contained within the plan is the present location of trees within and adjacent to the site with the simple addition of a dash-dot line (.-.-.), indicating where the protective barriers / fences will be erected.

11.2 The protective, special, fencing indicates the Construction Exclusion Zone (CEZ) contained within it, is the root protection area (RPA), the ground within this area should also be protected with a porous 'geo-textile' fabric covering held in place with ‘butting’ boards to eradicate any unnecessary root poisoning or soil contamination if at risk.

11.3 The colour coding for the retained trees follows the guidelines laid down in BS 5837 ‘Trees in relation to construction’.

They are as follows:

- Light Green — Trees whose retention is most desirable : High category
- Mid Blue — Trees whose retention is desirable : Moderate category
- Grey — Trees which could be retained : Low category
- Dark Red — Trees for removal : Fell category
12.0 Trees and Development

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<th>Contact Details</th>
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<td><strong>Developer / Client:</strong></td>
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<td><strong>Architect:</strong></td>
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<td><strong>Arboricultural Consultant:</strong></td>
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<tr>
<td><strong>Local Authority / Arb Manager / Officer:</strong></td>
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1.0 Arboricultural Planning Conditions

"No development shall take place on site until a method statement for works affecting trees has been submitted to and approved in writing by the local planning authority"

1.1 This method statement has been prepared for submission to Crawley Borough Council for approval.

2.0 General

2.1 This document sets out the methodology for all proposed works that affect trees on and adjacent to the site.

2.2 Compliance with this method statement will be a requirement of all relevant contracts associated with the development proposals.
12.0 Trees and Development (contd.)

2.3 Copies of this document, with any relevant appendices, will be available for inspection on site.

2.4 The developer will inform the local planning authority within twenty-four hours if the arboricultural consultant is replaced.

2.5 The arboricultural consultant will provide evidence of site visits in the form of "self-certification". This is a written statement that relates to the building site and the planning condition.

2.6 A 'variation' is a written statement relating to an agreement between the site agent and the arboricultural supervisor to temporarily move the position of a fence (or change the specification) and to detail the remedial procedures including a statement about when it will be restored.

3.0 Facilitation Works

3.1 Any facilitation works to trees necessary should be undertaken prior to site works taking place, to avoid harmful contact between machinery and retained trees. Any works recommended should be done by a qualified Arboricultural consultant and in should be in accordance with BS 3998 'Recommendations for Tree-work'.

4.0 Protective Barriers

4.1 Before the commencement of any works on site (other than those set out in the schedule of tree works), protective barriers will be erected in the positions shown on the drawing (Appendix 2)

4.2 The local planning authority will be notified once the barriers are in place.

4.3 The barrier specification / design will be in compliance with BS 5837 'Trees in relation to construction', (Appendix 4)

4.4 The fencing will remain in place until completion of the main construction phase and then only removed with the consent of the local planning authority to permit completion of the scheme. If any barriers need moving / altering, a 'variation' should be issued.

4.5 Other than works detailed within this method statement or approved in writing by the local planning authority, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective barriers.
12.0 Trees and Development (contd.)

5.0 Installation of Cellular Confinement ‘Cellweb’

5.1 Ground preparation for the installation of cellular confinement should be undertaken by hand; minor amounts of levelling can be undertaken but should not involve any excess digging. Any high spots should be removed using the excess soil to fill any low spots or holes.

5.2 The ‘Cellweb’ matting can then be installed on the levelled ground and filled with a soft suitable aggregate as recommended by Cooper Clarke.

5.4 The permanent ‘Cellweb’ road surface designed to protect the underlying soil structure within the RPA should then be laid. Where such ground protection is required it should be installed prior to commencement of any on site operations or deliveries. The permanent and temporary ground protection should be held firmly in place to eradicate the risk of it slipping or moving during development process.

6.0 General Precautions

6.1 As detailed in the British standard and summarised in the appended document ref. Section 11.11

7.0 Soft / Hard Landscaping within Construction Exclusion Zones (CEZ)

7.1 Ground preparation for patios in protected areas will be carried out under the supervision of the arboricultural consultant in order to minimise root disturbance.

8.0 Arboricultural Works

8.1 The works detailed below set out recommended arboricultural operations to retained trees on site.

8.2 These should be carried out prior to all other site operations including the erection of protective barriers.

8.3 For schedule of works please see attached survey sheets (Appendix 3)

8.4 All works will be carried out in accordance with BS 3998: 1989 'Recommendations for Tree work'

9.0 Protective Measures

9.1 The following schedule sets out the proposed measures to be undertaken to protect the trees on site. This will include the installation of protective barriers to the provided specification to be erected after all arboricultural operations are completed.
### 12.0 Trees and Development (contd.)

#### 9.0 Protective Measures (contd.)

| 01 | Erection of Protective barriers. Suggested specification enclosed — Appendix 3  
|    | - Notices will be attached to the barriers to remind workers that the tree is protected and the CEZ is strictly 'out of bounds'  
|    | - Site posters / information board erected providing development site information relating to trees and the details of the consultant Arborist employed by the developer (Site Dependent). |
| 02 | Provision of a geo-textile protective surface covering for the Construction Exclusion Zone (CEZ) if at risk from contaminants |
| 03 | Regular monitoring / inspection / self – certification by Consultant Arborist at five specified periods:  
|    | 1 Arboricultural Works  
|    | 2 Erection of Protective fencing / scaffold support  
|    | 3 At least one unplanned site visit during construction  
|    | 4 Dismantling of protective fencing  
|    | 5 Remedial Arboricultural works / Final site visit |
| 04 | No pruning of the trees will occur by unskilled workers |
| 05 | No change of present ground level allowed inside the CEZ |
| 06 | Compaction of RPA totally avoided and of the rooting zone minimised where possible — no heavy machinery allowed on root protection area |
| 07 | Storage of chemicals / materials, concrete mixer washings, paints and fuels all carried out outside the CEZ and away from the tree rooting zone. Storage of such materials will be in storage bins at designated areas |
| 08 | No bonfires will be allowed on site |
| 09 | All digging on site over tree roots will be by hand or with the use of an ‘Airspade’ — no trenching or mechanical soil stripping |
| 10 | Backfill back around exposed roots with a suitable in-fill material at the advice of the Consultant Arborist |
| 11 | Prune roots only if necessary and in accordance with BS 3998 'Recommendations for Tree-work', to be undertaken by an approved contractor under guidance from the Consultant Arborist. No roots pruned over 25mm. |
10.0 Supervision and Monitoring

10.1 The designated Arboricultural Consultant will be responsible for monitoring of all arboricultural works at the times specified by the client or contractor undertaking the works.

10.2 A certificate of practical completion of the identified task will be presented to the Local authority Tree Officer as evidence of adherence to the relevant planning conditions.

10.3 In addition, the consultant will inspect the protective barriers and monitor any works undertaken within the CEZ on notification from the site contact that works are to be undertaken.

10.4 A record of site visits will be maintained for inspection on site and copies forwarded to the developer / agent / planning officer.

13.0 LIST OF APPENDICES

13.1 Appendix 1 - Developable Area Plan
13.2 Appendix 2 - Tree Protection Plan
13.3 Appendix 3 - Survey Sheet
13.4 Appendix 4 - BS: 5837 Protective Fencing Specification
13.5 Appendix 5 - ‘Cellweb’ Cellular Confinement Info

14.0 ACKNOWLEDGEMENTS

14.1 ‘Diagnosis of ill health in trees’ (RG Strouts, TG Winter)
14.2 BS 5837 ‘Trees in relation to construction’ (British Standards Institute)
14.3 Arboricultural Practice Note 1 (APN 1) ‘Driveways Close to Trees’ (D Patch & M Dobson 1996)

Name of Consultant: Joseph Blackwell ND, Arb

Signature of Consultant: ........................................
For and on behalf of Connick Tree Consultants

CONNICK TREE CARE Ltd, NEW POND FARM, WOODHATCH ROAD, REIGATE, SURREY RH2 7QH

Please Note:
We are listed in the Arboricultural Association’s Directory of Approved Contractors
We have Professional Indemnity Cover in force
Appendix 1
(Developable Area Plan)
Appendix 2
(Tree Protection Plan)
Appendix 3
(Survey Sheet)
# CONNICK TREE CONSULTANTS (Development Site Survey Form)

**Site:** 48 Saxon Road, Worth, West Sussex, RH10 7SB  
**Inspecting Surveyor:** Joseph Blackwell ND. Arb  
**Date:** 14/12/2006  
**Weather conditions:** Overcast / Mild

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Common Name (Genus / species)</th>
<th>Cr. Radius (m)</th>
<th>HT (m)</th>
<th>Trk Dia 1.5m</th>
<th>Age Class Y / SM / M / OM</th>
<th>Vigour / Lifespan Low / Normal</th>
<th>Cond</th>
<th>Ref. Code A-C</th>
<th>Aand C</th>
<th>Problems / Comments</th>
<th>Recommendations / Priority works</th>
<th>Barrier (fence) Distance (m)</th>
</tr>
</thead>
</table>
| T1       | English Oak *(Quercus robur)* | 5 4 4 4 4 14 - 16 380 Y | N40> | A | C1 | - Moderate amenity value  
- Part of small group planting  
- Smallest tree on group edge has been suppressed by adjacent trees  
- Minor dead and diseased wood throughout crown  
- Asymmetric crown to north-east  
- Natural grafting has taken place at mid crown  
- Low branches over site and parking below tree  
- Indifferent shape with average form provides some screening for adjacent properties and is of some long term potential | - Reduce north-east lateral branches by 15-20%  
- Remove lowest 3 branches lift remaining crown to 4m |
| T2       | Common Ash *(Fraxinus excelsior)* | 4 4 4 4 14 - 16 350 Y | N40> | A | C1 | - Low amenity value  
- Minor dead and diseased wood throughout crown  
- Asymmetric crown to south  
- Tree over-lifted in past  
- Slight natural curve in lower stem  
- Overgrown epicormic at base  
- Average shape and form provides some screening for adjacent properties and has some potential | - Remove epicormic growth |

4.5  
4
Appendix 4
(BS: 5837 Protective Barrier Specification)
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. Ground level
8. Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

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Figure 3 — Scaffolding within the RPA
Appendix 5
(‘Cellweb’ Cellular confinement info)
In the case of a geocell system used to confine the near surface zone of a low cohesive soil under concentrated loads for tree root protection, such as vehicular traffic, the Geoweb cellular confinement system provides a load transfer mattress (Fig.1) so preventing direct load on unprotected tree roots.

In contrast to two-dimensional geogrids used with layers of granular fill (unsuitable for tree root protection due to pre-rutting required to provide tensile strength) the Geoweb mechanism prevents unconfined rutting of subsoil's (Fig.2) by confining the infill materials within the hoop strength thereby increasing the infill's shear strength. The load redistribution that occurs within the confined zone (Fig 3) is complex and involves three-dimensional interaction between the infill material and the cellular structure. Vertical stress applied to the infill induces a horizontal active pressure at the perimeter of the cell.

The infill-wall interface friction transfers load into the cell structure which in turn mobilises resistance in surrounding cells. It is also evident that cells which surround a loaded cell offer greater passive resistance due to lateral strain in the vicinity of the load. The combined effect of these mechanisms produces a composite mattress with high flexural stiffness and load support capabilities within the Geoweb layer.

The use of a nonwoven geotextile beneath the Geoweb cellular mattress acts as a separation / filtration layer (Fig.4). The placement of Geoweb on cohesionless subsoil's with a free draining granular infill requires the separation function of a Polyfelt TS50 geotextile (Fig.5). The geotextile fabric is laid over the prepared subgrade prior to the expansion of the Geoweb mattress. This prevents the mixing of fill material with subgrade while allowing free drainage.

The perforated cellular wall structure provides mechanical interlock for infill materials increasing the shear strength properties while allowing intercell lateral free-drainage through perforated cell walls. Flow rates tests undertaken by the British Textiles technology Group (BTIG) have proved a lateral reduction in flow rate of 10% between unconfined fill and fill confined within the cell wall construction.