Broad Oak Tree Consultants Limited
Incorporating Chris Yarrow and Associates
Laurel House, Burwash Road, Broad Oak, Heathfield, East Sussex TN21 8SS
Tel: 01435 862444 Fax: 01435 863222 Email: t.laddiman@fsmail.net

ARBORICULTURAL IMPLICATIONS ASSESSMENT OF PROPOSED DEVELOPMENT

AT

LAND TO REAR OF NO. 84 WHITTON ROAD TWICKENHAM

by

Tim Laddiman
B.Sc.(Hons) M.I.C.For. M.Arbor.A.

Our ref: J 30.89
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Version II

CONTENTS

1. INTRODUCTION

1.1 Broad Oak Tree Consultants Ltd. have received instructions to prepare an Arboricultural Implications Assessment for the proposed development on land to the rear of No. 84 Whitton Road, Twickenham.

1.2 The proposals are for the clearance of existing structures and the construction of a mixed office and residential development with associated parking and landscaping, utilising an existing entrance on to Whitton Road. Details will have been provided by others.

2. GENERAL SITE DESCRIPTION

2.1 The site comprises an area of level land, formerly part of a garden belonging to No. 84 Whitton Road. There is an existing access point alongside No. 84 Whitton Road leading to an area of concrete hardstanding and a corrugated iron building. There is also the footprint of an old brick walled greenhouse with numerous fruit trees, having previously formed part of a garden. Numerous self-seeded trees have developed, indicating the area has been neglected for several decades.

2.2 Around the boundaries of the site are a number of trees, principally broadleaved, at various stages of development and mostly located in adjoining gardens and overgrown allotments to the west.

3. DATA COLLECTION

3.1 All trees were inspected from the ground and no climbing or boring was undertaken. Only those trees within the site boundary could be basally inspected, with the structural integrity of trees located outside the site unconfirmed. Each tree or group of trees/mature shrubs was inspected to the requirements of Section 4.2.6 of BS5837:2005 “Trees in Relation to Construction – Recommendations”.

3.2 The tree survey followed the numbered sequence from 1–24 inclusive. Tree numbers, together with BS recommended colour coding of condition, have been added to the Tree Constraints Plan, our drawing no. J 30.89/03 in Appendix 2.

3.3 The following categories of information were obtained for each tree or group. Separate detailed tree survey sheets are attached in Appendix 1, together with comprehensive explanatory sheets which cover the details of the categories listed below.

(1) Tree reference number
(2) Species
(3) Height in metres
(4) Stem count
(5) Stem diameter in millimetres
(6) Branch spread in metres
(7) Age class
(8) Height of crown clearance in metres
(9) Physiological condition
(10) Estimated remaining contribution in years
(11) Category grading
(12) Structural condition
(13) Preliminary management recommendations

3.4 Within the assessment of physiological condition and remaining contribution, a visual inspection of each tree was undertaken to assess the crown and stem for any weak structures, deadwood, hollows, forks or other defects that might affect its stability and safety. The base of each tree was also visually inspected, together with tapping and probing, to search for signs of root lifting, bark death or decay. Where stems were heavily ivy clad, no full assessment of structural integrity could be undertaken. Clearance of the ivy would be necessary for confirmation of tree condition.

4. RISK ASSESSMENT - INFORMATIVES

4.1 Although the potential risk to someone passing beneath a tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year round basis, such as footpaths, gardens and roadways. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of a tree could potentially cause physical damage to such structures.

4.2 Within the scope of any tree survey it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even healthy trees can suffer stem snap or windblow. There is also a well known propensity for mature trees to occasionally shed limbs for no discernible reason, even on calm days. Although relatively rare, limbs may occasionally be shed and this should be acknowledged as a risk that cannot entirely be mitigated.

5. RESULTS OF TREE INSPECTIONS

5.1 A total of 24 individual trees and groups have been included in the tree descriptions attached to this report. These include typical suburban mixtures of native and non-native species, mostly broadleaved, at various stages of development. Within the overgrown area to the west the trees are a mix of planted fruit trees and naturally regenerated opportunistic sycamores and ashes. Some of the sycamores were observed as having weak basal stem attachments and will be prone to failure in the future. These include trees nos. 11, 17, 18 and 19.

5.2 Of the trees inspected, the following is a breakdown of the various numbers of trees and groups in each BS category.

BS category of condition	Tree nos.	Total no.
B	7, 20, 24	3
C	1, 2, G3, 4, 6, G8, 11, G12, G13, 14, G19, 21, 23	13
C/R	G5	1
R	9, 10, G15, 16, 17, 18, 22	7
	TOTAL	**24**

5.3 ***Interpretation***

Category B Retention desirable. Of moderate quality and value and in such a condition as to make a significant contribution (a minimum of 20 years is suggested).

Category C Could be retained – of low quality and value. Poor crown form, heavily asymmetric, large numbers of similar species/size. 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.

Category C/R Trees that would be included in category C but have structural faults, areas of decay, etc. that require more detailed investigations or climbing inspections to ascertain whether or not they can be safely retained. Groups that include dead/dying/dangerous individuals.

Category R Trees for removal. Dead/dying/dangerous trees due to structural defects, fungal decay or root plate uplift. 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.

ARBORICULTURAL IMPLICATIONS ASSESSMENT

6. DEVELOPMENT PROPOSALS

6.1 The proposals are for the clearance of existing structures and the construction of a mixed office and residential development with associated parking and landscaping, utilising an existing entrance on to Whitton Road. Details will have been provided by others.

6.2 The development proposals are indicated on the Tree Protection Plan, our drawing no. J30.89/04, in Appendix 3, which includes tree information, together with tree root protection areas and the location of tree protective fencing.

7. IMPACT OF DEVELOPMENT ON TREE RETENTION

7.1 In considering the feasibility of tree retention within any site, account has to be taken of the areas of undisturbed roots that will be retained around each tree. Based on the stem diameter of the tree and the formula contained in Table 2 of BS5837:2005, an area of undisturbed rooting necessary for the survival and longevity of each tree can be calculated.

7.2 The table includes the calculated radial protection zones for all trees except those identified as category R that require removal on safety grounds within 10 years. In addition, an assessment is given of the proximity of any proposed ground disturbance to trees and whether this separation would be acceptable based on the calculated root protection areas.

7.3 ***Table Assessing Impact of Development Proposals on Trees***

Tree ref. no.	Species	Category grading	BS calculated minimum root protection radial distance (m.)	Distance to disturbance (m.)	Type of disturbance	Comments
1	Eucalyptus	C	3	0.5	Drive	No impact - existing surfacing
2	Pissard plum	C	3.5	1.6	Drive	Some near surface damage
G3	Mixed spp.	C	3.6	0+	Building	Require removal
4	Apple	C	5.2	5.5	Building	Requires removal
G5	Norway maple	C/R	2.8	0+	Building	Require removal
6	Beech	C	3	5.1	Building	No impact
7	Sycamore	B	8.4	5.6	Building	Minimal impact
G8	Mixed spp.	C	3.6	5+	Outbuilding	No impact
9	Apple	R	-	-		
10	Sycamore	R	-	-		
11	Oak	C	2.8	0	Path	Requires removal
G12	Ash/ Sycamore	C	2.6	0+	Building	Require removal
G13	Ash/Pear	C	<3.5	0+	Building	Require removal
14	Apple	C	3.4	0	Building	Requires removal
15	Mixed spp.	R	-	-		
16	Sycamore	R	-	-		
17	Sycamore	R	-	-		
18	Sycamore	R	-	-		
G19	Mixed spp.	C	<3.6	0+	Building	Require removal
20	Oak	B	5.5	8	Building	No impact
21	Magnolia	C	1.9	2.8	Building	No impact
22	Bastard service tree	R	-	-		
23	Cedar	C	2.6	9	Parking bay	No impact
24	Ash	B	9.6	11.4	Parking bay	No impact

7.4 **Interpretation of table**

7.4.1 For trees nos. 2 and 21 there could be some minimal disturbance of outer rooting areas during construction. As these are small category C trees, this will not be a significant impact and does not require specific protection measures.

7.4.2 For tree no. 7 the proposed building would overlap with approximately 9.1m^2 of the total 221.7m^2 protection area, or less than 5% of the total. Given the competing presence of G5 for moisture and rooting space, it is considered unlikely that roots from tree no. 7 will be present beneath the proposed footprint. This theoretical level of impact is therefore considered acceptable.

7.4.3 The use of ground protection measures beyond the proposed fencing line will protect the ground from compaction during construction, maximising the protected theoretical rooting area

8. TREES FOR REMOVAL TO FACILITATE DEVELOPMENT

8.1 Based on the above table, the following trees would require removal.

8.1.1

Tree no.	Species	BS condition	Comments
G3	Apple/Ash/Laurel	C	Mix of low quality orchard trees, shrubs and self-seeded ash.
T4	Apple/Ash/Laurel	C	Overgrown fruit tree.
G5	Norway maple	C/R	Dense group of self-seeded trees of poor form.
T11	Oak	C	Thinning crown. Small tree of no significance.
G12	Ash/Sycamore	C	Opportunistic growth due to lack of maintenance.
G13	Ash/Pear	C	Overgrown, declining fruit trees with opportunistic ash.
T14	Apple/Ash/Laurel	C	Fruit tree.
G19	Pear/Elder/Sycamore	C	Fruit trees and self-seeded sycamores.

8.1.2 All the trees to be removed are either old fruit trees or opportunistic self-seeded trees of pioneer species that have developed due to a lack of maintenance.

9. TREES AND SHADE

9.1 Due to the orientation of the proposed units there would be limited summer shading to the front of the block of three units at the southern end of the site, and this would only occur on sunny days and when T24 is in leaf. With the principal amenity space being to the rear or east of the units, this is not considered to be an issue.

9.2 Tree no. 20 would cast some shade over the rear garden of the end unit to the south, but this would not affect the whole garden and would only relate to sunny summer days when shading for young/old people can be a positive factor.

9.3 Overall, shading issues relating to trees are not considered a significant factor and should not affect any planning decisions.

10. TREE PROTECTION MEASURES – FENCING

10.1 *Location of fencing*

10.1.1 The Tree Protection Plan indicates the proposed location of protective fencing. This is based on the RPAs calculated and the space available.

10.2 *Design of fencing*

10.2.1 The protective fencing is to be constructed of a braced scaffold framework with uprights driven into the ground to a minimum depth of 0.6m. and at no greater than 3m. spacing. On to the framework weldmesh panels such as “Heras” or a similar product will be securely mounted with all weather notices attached reading “Keep Out – Protected Area” or similar on every fifth panel. The fencing will form enclosed areas to which no access will be allowed.

10.3 *Timing of fencing*

10.3.1 Protective fencing is to be erected prior to commencement of ground works and remain in place until completion of construction. The location and suitability of the fencing can be confirmed to the local authority by an arboricultural consultant prior to commencement of construction. Any tree felling would need to be undertaken prior to fence installation to minimise risks to operatives. All tree surgeon’s vehicles would be kept outside of the indicated protection zones.

10.4 *Additional precautions*

10.4.1 The storage of potentially injurious materials such as fuels, oils, chemicals and cement will be kept at least 10m. from any stem, or in a bunded storage vessel. No fires will be lit within 5m. of the drip line of any retained tree.

11. GROUND PROTECTION MEASURES

11.1 In areas within root protection areas where access around the new building footprints will be required during construction, specific ground protection measures will be required. These should comprise interlocking, specifically designed load bearing temporary roadway plates, commonly made of steel or specialised plastics. They will minimise any risk of compaction whilst providing a running platform for machinery.

11.2 Where foot access only is required, ground protection measures should comprise a base layer of geotextile, over which 50mm. of woodchip will be laid, topped by side butting scaffold boards or non-slip surfaced minimum 20mm. thick plywood.

11.3 Installation of the ground protection measures should take place at the same time as the protective fencing, prior to demolition, and remain in place until completion of construction.

12. SERVICES

12.1 Service routes will enter the site along the alignment of the entrance drive. These runs will fall outside the calculated root protection areas and will not therefore have an adverse impact on the root systems of retained trees. Adequate space exists for the provision of soakaways outside indicated root protection areas, thus no specific precautions will be required.

13. SITE OPERATIONS AND MATERIALS STORAGE

13.1 As this is a small scale development, adequate space exists outside root protection areas for the delivery of materials on the "as and when needed" basis on which small sites operate. Specific details of site zoning cannot be determined by Council or consultant arboriculturalists as these are often driven by health and safety requirements and assessments undertaken by site contractors. However, the robust nature of the protective fencing will ensure that the root protection areas are not encroached upon during the construction process.

14. LANDSCAPING

14.1 Landscaping details have been dealt with by others and are not included in this report.

15. ARBORICULTURAL METHOD STATEMENT

15.1 The attached Arboricultural Method Statement in Appendix 4 provides details of tree protection measures throughout the development process and can be used by contractors in conjunction with this report to ensure minimal disturbance to retained trees.

16. SUMMARY

16.1 The proposed development would require the removal of three individual trees and five groups of trees, the majority being fruit trees and opportunistic growth resulting from a lack of maintenance. All of these are classified as BS category C which, according to BS 5837:2005, should not represent a significant constraint to development.

16.2 The robust protective fencing and ground protection measures proposed will provide appropriate protection for retained trees and those in adjoining gardens during the construction process in accordance with BS requirements.

Tim Laddiman
Broad Oak Tree Consultants Ltd.

APPENDIX 1

TREE SURVEY EXPLANATORY SHEET

Height	in metres (estimated where ground uneven or access restricted).
Stem count	number of stems
Stem diameter (ARF)	in mm. at 1.5m. above ground level. Above Root Flare – diameter of multi-stemmed trees measured at this level.
Branch spread	radial spread in metres at four main compass points (estimated where no access).
Age class	Young - Y Middle aged - MA Mature - M Over mature - OM Veteran - V
Height of crown clearance	in metres. Normally range of heights of outer branches above ground level, e.g. 2-4m.
Physiological condition	Good, Fair, Poor, Dead
Estimated remaining contribution	in years e.g. less than 10, 10-20, 20-40, 40+
Category grading	see attached sheet
Structural condition	comment on presence of defects, decay, crown form, past management**,** deadwood, other features worthy of note. N.B. If trees are ivy clad, no full structural assessment will have been possible.
Preliminary management recommendations	requirements of further investigations, works necessary to alleviate potential hazards based on current setting and levels of access. NB: Works that may be necessary in relation to development are not included here

CASCADE CHART FOR TREE QUALITY ASSESSMENT

<table>
<tr><th colspan="5">TREES FOR REMOVAL</th></tr>
<tr><td>Category and definition</td><td colspan="3">Criteria</td><td>Identification on plan</td></tr>
<tr><td>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</td><td colspan="3">• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)
• Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.
• Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality

NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)</td><td>DARK RED</td></tr>
<tr><th colspan="5">TREES TO BE CONSIDERED FOR RETENTION</th></tr>
<tr><td rowspan="2">Category and definition</td><td colspan="3">Criteria - Subcategories</td><td rowspan="2">Identification on plan</td></tr>
<tr><td>1. Mainly arboricultural values</td><td>2. Mainly landscape values</td><td>3. Mainly cultural values, including conservation</td></tr>
<tr><td>Category A
Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)</td><td>Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</td><td>Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)</td><td>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</td><td>LIGHT GREEN</td></tr>
<tr><td>Category B
Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)</td><td>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)</td><td>Trees present in numbers, usually as groups or woodland, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality</td><td>Trees with clearly identifiable conservation or other cultural benefits</td><td>MID BLUE</td></tr>
<tr><td rowspan="2">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.</td><td>Trees not qualifying in higher categories</td><td>Trees present in groups or woodland, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.</td><td>Trees with very limited conservation or other cultural benefits</td><td rowspan="2">GREY</td></tr>
<tr><td colspan="3">NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation</td></tr>
</table>

Tree no.	Species	Height (m.)	No. of stems	Stem diameter (mm.)	Branch spread (m.)				Age class	Height of crown clearance (m.)	Physiological condition	Estimated remaining contribution	B.S. Condition		Structural condition	Preliminary management recommendations
					N	E	S	W								
1	Eucalyptus	8	1	250	4	3	3.5	3	Y	4+	Good	40+	C	1	Twin-stemmed at 2.5m. No branches below 5m. Topped in past 2 years. Located on third party land.	
2	Pissard plum	4.5	2	350	3	2	3	2	MA	2+	Good	20-40	C	1	Twin stemmed from near ground level. One stem removed at 1m. Topped at 2.2m. in past. Dense new crown.	
G3	Apple, Ash + Laurel	<12	1	300	<5	<5	<5	<5	Y-M	1+	Fair	20-40	C	2	Dense strip along an old garden boundary line. Planted apples, one overgrown laurel and self seeded ash trees.	
4	Apple	7	1	430	3	2	5	7	M	0.5+	Fair	10-20	C	1	Multi-stemmed from 1.6m. Deadwood.	Deadwood crown.
G5	Norway maple	<13	1	230	<5	<5	<5	<5	Y	1+	Fair	0-40	C/R	1	Majority of the stems are crowded with crowns to W. One dead stem.	Fell dead stem.
6	Beech	10	1	250	4	2.5	4	3	Y	2+	Fair	20-40	C	1	Crowded by trees in site. No basal inspection as located in adjoining garden.	
7	Sycamore	14	1	700	6	4	4	4	M	3+	Fair	20-40	B	2	Twin stemmed from 1.6m. Pollarded in past at 5m. and c.6m. height.	
G8	4 Apple, Pear + Ash	<8	1	300	<4	<4	<4	<4	Y-M	1+	Fair	20-40	C	2	Two dominant stems beyond wall. Pear to E heavily crowded.	
9	Apple	4	1	280	3	2	3	3	M	2+	Poor	<10	R		Multi-stemmed from 2m. Extensive decay in stem to E at join.	Fell.
10	Sycamore	10	3	370	4	5	5	5	Y	1+	Poor	<10	R		Three stems <1m., two co-dominant off weak fork.	Fell.
11	Oak	7	1	230	3	3	3	3	Y	1.5+	Fair	10-20	C	1	Thinning of foliage. Becoming ivy clad.	
G12	Ash/ Sycamore	<12	MS	260	<4	<4	<4	<4	Y	1+	Fair	20-40	C	1	Single stemmed to multi-stemmed, opportunistic growth round and in old greenhouse base. Crowded.	

Tree no.	Species	Height (m.)	No. of stems	Stem diameter (cm.)	Branch spread (m.)				Age class	Height of crown clearance (m.)	Physiological condition	Estimated remaining contribution	B.S. Condition		Structural condition	Preliminary management recommendations
					N	E	S	W								
G13	2 Ash, 3 Pear	<11	MS	350	<4	<4	<4	<4	M	2+	Fair	20-40	C	2	All pears multi-stemmed <2m. height. Generally declining condition, particularly two to N with deadwood. Ash opportunistic young growth.	
14	Apple	5	1	280	5	5	3	5	M	2+	Fair	10-20	C	2	Multi-stemmed from 1.7m., open crown. Deadwood.	
G15	Apple/ Sycamore	<9	1	230	2	3	4	4	Y-M	2+	Fair	<10	R		Sycamore growing up through crown of apple. Limb from apple restricting stem development. Apple multi-stemmed from 2m. Deadwood and thinning crown.	
16	Sycamore	14	3	550	5	5	6	3	Y	3+	Poor	<10	R		Three stems from near ground level, two joined by weak fork.	Fell.
17	Sycamore	14	1	320	3	2	5	4	Y	3+	Poor	<10	R		Weak fork at 1.7m.	Fell.
18	Sycamore	11	2	400	5	4	4	5	Y	2.5+	Poor	<10	R		Twin stemmed from 70cm. with weak compression join. Becoming ivy clad. Few branches below 4m.	Fell.
G19	Pear, Elder + Sycamore	<9	1	300	<4	<4	<4	<4	Y-M	2+	Fair	10-20	C	2	Cluster of fruit trees and self-seeded sycamore.	
20	Oak	12	1	460	6	5	7	6	Y	4+	Fair	40+	B	2	No full inspection as located in adjoining garden Crowded development. Topped in past at 4-5m., with re-growth mainly to S and W.	
21	Magnolia	6	1	160	3	3	3.5	3	MA	3+	Fair	40+	C	1	Upper stem curved to N. Crowded. No full inspection as located in adjoining garden.	
22	Bastard service tree	8	1	240	2.5	2	3	2.5	Y	4+	Poor	<10	R		Multi-stemmed from 2.5m. with tight weak forks. No full inspection as located in adjoining garden.	
23	Cedar	14	1	220	4	4	2.5	1	MA	7+	Fair	40+	C	1	Crowded to W. High crown. No full inspection as located in adjoining garden.	
24	Ash	c.20	1	800	<8	<8	<8	<8	M	3+	Fair	20-40	B	2	No detailed information available as located in adjacent garden.	

APPENDIX 2

Brood Oak Tree Consultants Ltd
Laurel House
Burwash Road
Broad Oak
Heathfield
East Sussex
TN21 8SS

Tel: 01435 862444
Fax: 01435 863222
Email: broadoaktrees@btconnect.com

84 WHITTON ROAD TWICKENHAM

TREE CONSTRAINTS PLAN

T1 – T24 Tree numbers

BS Category of Condition

- 0 BS Condition A
- T7 BS Condition B
- T1 BS Condition C
- T9 BS Condition R
- Actual crown spread
- BS Calculated root protection areas

G12
Ash/ Sycamore
C

G8
4 Apple, Pear + Ash
C

T9
Apple
R

G13
2 Ash, 3 Pear
C

G15
Apple/ Sycamore
R

T14
Apple
C

G19
Pear, Elder + Sycamore
C

T10
Sycamore
R

T7
Sycamore
B

G5
Norway maple
C/R

T6
Beech
C

T11
Oak
C

T1
Eucalyptus
C

T18
Sycamore
R

T17
Sycamore
R

T16
Sycamore
R

T4
Apple
C

T2
Pissard plum
C

G3
Apple, Ash + Laurel
C

T23
Cedar
C

T22
Constard service tree
R

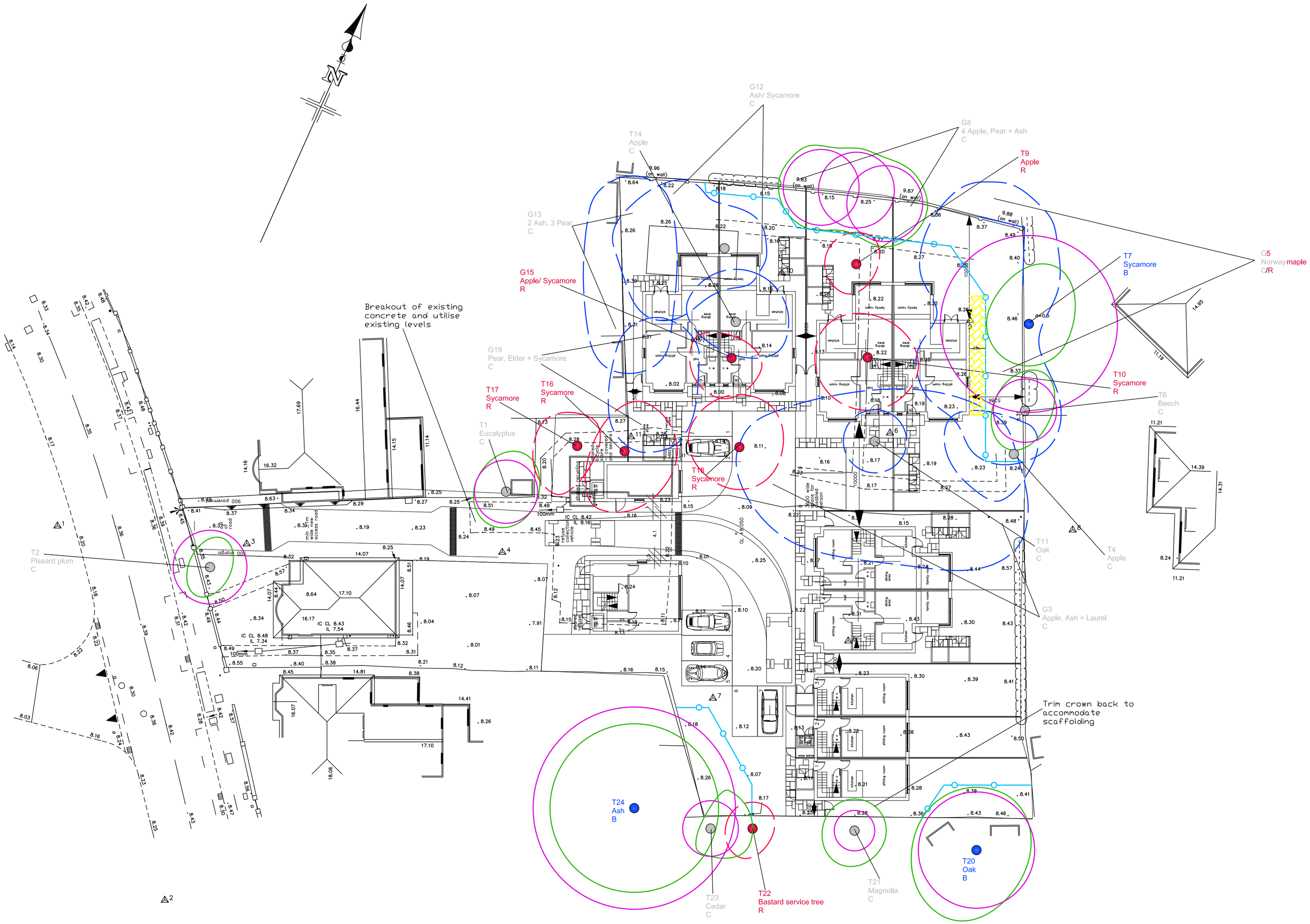
T25
Ash
B

T20
Oak
B

T21
Magnolia
C

DRAWING NO. J30.89/03
Scale: 1:200 at A1
Added to by: NL
23/04/2008

APPENDIX 3



Brood Oak Tree Consultants Ltd
Laurel House
Burwash Road
Brood Oak
Heathfield
East Sussex
TN21 8SS

Tel: 01435 862444
Fax: 01435 863222
Email: broodoaktrees@btconnect.com

84 WHITTON ROAD TWICKENHAM

TREE PROTECTION PLAN

T1 – T25 Tree numbers

BS Category of Condition

- 0 — BS Condition A
- T7 — BS Condition B
- T4 — BS Condition C
- T9 — BS Condition R

Actual crown spread

BS Calculated root protection areas

Protective fencing location

Ground protection

DRAWING NO. J30.89/04

Scale: 1:200 at A1

Added to by: NL

13/05/2008

APPENDIX 4

ARBORICULTURAL METHOD STATEMENT
FOR TREE PROTECTION AT
LAND TO REAR OF NO. 84 WHITTON ROAD
TWICKENHAM

1. GENERAL

This statement sets out the methodology for proposed works with the potential to affect trees on and adjacent to the site. Compliance with this Method Statement will be a requirement of all relevant contracts associated with the development proposals. The documents to be referred to in conjunction with this statement are as follows:

- Arboricultural Implications Assessment Report dated 16th May 2008, hereafter referred to as "the Report".
- Broad Oak Tree Consultants Ltd.'s drawing no. J 30.89/04 – Tree Protection Plan, hereafter referred to as "the Plan".

2. ARBORICULTURAL WORKS

- Trees for removal are indicated by dashed outlines on the Plan. No other trees are to be removed without reference to the arboricultural consultant. For reasons of operator safety it is recommended that all tree clearance and tree works recommended in the Report are undertaken prior to site clearance and erection of protective fencing.

- An appropriately qualified and insured tree surgery company will undertake all recommended felling and tree surgery works to the requirements of BS 3998:1989 "Recommendations for Tree Work".

- No fires or chip piling to occur within 5m. of the drip line of any tree canopy or within 10m. of any tree stem, whichever is the further.

- Stumps of all trees within 15m. of retained trees to be ground out using pedestrian guided wheeled/tracked grinding machines.

- Prior to tree surgery/felling works commencing, the trees for works should be checked for the presence of nesting birds or bats. Disturbance of nesting birds or bats could represent an offence and result in prosecution under the Wildlife and Countryside Act 1981.

- All contractors' vehicles to remain outside indicated root protection areas as shown on the Plan.

3. TREE PROTECTION MEASURES

Location of fencing

Protective fencing to be erected at indicated locations on the Plan. Fencing to produce enclosed zones around individual or linear runs of trees.

Timing of fencing

Protective fencing is to be erected once arboricultural works have been completed and prior to commencement of ground works. The location and appropriateness of the fencing will be confirmed to the Local Authority by the arboricultural consultant. All fencing will remain in place until completion of construction and any hard landscaping.

Design of fencing

The protective fencing is to comply with Section 9 and Figure 2 of BS 5837:2005. Fencing will be constructed of a braced scaffold framework with uprights driven into the ground to a minimum depth of 0.6m. and at no greater than 3m. spacing. On to the framework, weldmesh panels such as “Heras” or similar products will be securely mounted with all-weather notices attached to every fifth panel, reading “Keep Out – Protected Area” or similar. The fencing will form enclosed areas to which no access will be allowed.

4. GROUND PROTECTION MEASURES

To allow for safe working space around buildings, it will be necessary for the set back of fencing to occur where indicated by hatching on the Plan. This will be to the specification outlined in Section 9.3 and Figure 3 of BS 5837:2005 and is for foot access only. The measures will comprise a base layer of geotextile, over which a 50mm. layer of woodchip will be spread, with a top layer of side butting scaffold boards. This will act as a load bearing surface for foot passage without causing compaction damage to underlying roots.

If machinery access is required, ground protection will comprise interlocking plates made of steel or other specifically designed material to form a load bearing running surface for vehicles.

Ground protection measures will be installed prior to commencement of ground works and remain in place until completion of construction.

5. GENERAL PRECAUTIONS

The storage of potentially injurious materials such as fuels, oils, chemicals and cement will be kept at least 10m. from any stem or in a bunded storage vessel. No changes in level will occur, either increases or decreases within the protective fencing areas.

6. INSTALLATION OF SERVICES

Service runs will enter the properties utilising the access drive and positioned outside indicated RPAs. If incursion into the protective areas is unavoidable, then the routing should be obtained either by thrust boring or hand excavation, supervised by an arboricultural consultant. Any works within the protective areas will need to be undertaken to the requirements of NJUG Volume 4 "Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees".

7. ARBORICULTURAL SUPERVISION OF WORKS

An arboricultural consultant will undertake monthly inspections of the site and produce a written statement to the Council's Trees Officer confirming the condition of the site and protective measures, any reportable infringements of protection areas and details of any mitigation measures necessary. Monitoring will continue until construction and the soft landscaping have been completed.

In addition, the arboricultural consultant will provide confirmation of completion in compliance with this Method Statement of the following works:

- Location and design of protective fencing.
- Tree removal and tree surgery works detailed in the Report.