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Title: **BS 5837 Tree Report at 429-431 London Road, Ditton**

Client: **Mr J Wright**

Reference: **M219**

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1. Tree report summary

Suitability of site for development in relation to trees

1.1 Although development would mean much of the generally poor quality tree cover on the plot would be lost in the short term, the measures specified in this report should ensure that it is replaced with a reasonable amount of sustainable, higher quality planting in the mid to long term.

Therefore I would consider the site reasonably suitable for development in relation to trees.

2. Overview

2.1 This BS 5837 tree report consists of the following:

- A Tree Survey. This records the tree details and assigns a category in accordance with BS5837. The tree survey supplies the information that is shown on the Tree Constraints Plan.
- Tree Constraints Plan (TCP). A scale drawing showing the crown spread, tag number, BS5837 category and nominal Root Protection Area of each surveyed tree. This should be used to inform a basic design layout that takes account of important trees.
- An Arboricultural Implications Assessment (AIA). Study undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.
- An Arboricultural Method Statement (AMS). Methodology for the implementation of any aspect of development that has the potential to result in loss or damage to a tree
- A Tree Protection Plan (TPP). A Scale drawing showing the finalised layout proposals, tree retention and tree and landscape/protection measures.

2.2 Brief instruction

I have been instructed by Mike Cotterill on behalf of Mr J. Wright to carry out a BS5837 tree report in relation to a planning application for development at 429-431 London Road, Ditton, Kent, ME20 6DB.

2.3 Qualifications and experience

I have based this report on my site observations. I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and construction and list the details in Appendix 2

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2.4 Documents and information provided

I was provided with the following information:

- Drawing No. PPF/08/02/2 showing the position of trees and a draft proposed layout.

2.5 Limitations of use and copyright

3.0 Tree Survey

3.1 Scope of the survey

Carry out a tree survey in accordance with BS 5837:2005 Trees in relation to Construction. This involves the following:

- Make a visual, "from the ground" inspection of all trees with a stem diameter greater than 75mm at a height of 1.5 that may be affected by the design or construction processes of the proposed development.
- Complete a schedule of information for each tree.
- Indicate preliminary recommendations for works to maximise the likelihood of retained trees having a Safe Useful Life Expectancy (SULE) of at least ten years.
- Categorise the trees.
- Plot the trees on drawing M219TCP and indicate the Root Protection Area (RPA), crown spread, tag number and BS5837 category.

The survey is based upon information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.

3.2 Site Visit and Observations

3.2.1 Site visit

I surveyed the trees on 04 August 2008. The weather was sunny and clear.

3.2.2 Brief site description

The site is a plot of land at the rear of a residential/commercial property with access via a drive currently serving the garage to 429/431 London Road. The plot is surrounded by other residential properties on all three sides.

3.2.3 The Trees

The majority of the trees that may be affected by the development are within the site boundaries. There are two conifer hedges outside the site boundaries that need to be considered.

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I have estimated the position of the two conifer hedges in neighbouring property and added them to the Tree Constraints Plan M219TCP included as Appendix 6. These trees were surveyed without crossing the site boundary.

Specific details of each tree surveyed are recorded in the tree survey schedule included as Appendix 3 and on the Tree Constraints Plan M219TCP included as Appendix 6.

3.2.4 The Soils

British Geological Survey Sheet 288 indicates that the area is "Folkestone Beds 46-55m sand". This was confirmed by observing sand down to a depth of at least 1m in an excavation in the garden. This would suggest that the retention, removal or replacement of trees is unlikely to incur out of the ordinary foundation design. A structural engineer could advise further on this.

Survey maps only indicate a general trend in an area. They do not take account of pockets of different types of soil that may be present.

3.2.5 Services

I did not see any direct conflict between trees and existing services.

3.2.6 Shade

The orientation of the site indicates that the trees are currently likely to cast significant shade on the rear garden of the adjoining property to the west and also intense shade beneath the densely planted trees.

3.2.7 Identification and location of trees

The trees surveyed are identified by referring to drawing M219TCP.

3.3 Tree categorisation

3.3.1 Retention and Removal

The category for each tree is ascertained by following the guidelines in the cascade chart for tree quality assessment included with the TCP tree schedule in Appendix 3. A brief summary of each category is outlined as follows:

3.3.2 **Category A trees**

This category signifies trees that are of a high quality and value. Occasionally a veteran tree, although not in the best condition may warrant this category because of its wildlife and cultural value. It is essential to retain these trees. The design of the proposed development should take into account the retention of category A trees.

There are no category A trees on this site.

3.3.3 **Category B trees**

This category signifies trees that are of a moderate quality and value. It is important to retain these trees. The design of the proposed development, where feasibly possible, should take into account the retention of category B trees. A design layout that suggests the removal or impingement of category B trees has an increased risk of planning refusal. If affecting B category trees is unavoidable it may be possible to negotiate their replacement with similar size

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specimens providing adequate consideration is given to supplying sufficient future growing conditions.

Category B trees are coloured blue on drawing M219TCP.

3.3.4 **Category C trees**

This category signifies trees that are of low quality and value. They could generally remain and be expected to have a safe useful life expectancy of between 10 and 20 years if no development were to occur. However, because of their low quality it should not be prejuducial to remove them if they are likely to be a significant constraint to the design or construction process. Particular attention is drawn to the phrase "significant constraint". Although it should not be necessary I would suggest that replacement of removed category C trees, where possible, would assist in obtaining planning permission

Category C trees are coloured grey on drawing M219TCP.

3.3.5 **Category R trees**

This category signifies trees that are 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.

Category R trees are coloured red on drawing M219TCP.

3.4 Root Protection Areas (RPA)

Approximately eighty percent of a tree's roots are in the top 600 mm of soil. Therefore any changes in this vital environment including: ground level, soil compaction, physical damage to roots, moisture or levels of contaminants can have a dramatic affect on the health of a tree. At deeper strata alterations in water table and routing of services can cause detrimental, long term, effects.

The area of roots that a tree generally needs to survive is called the Root Protection Area (RPA). The RPA is calculated using a formula based upon the diameter of the tree at 1.5 metres high for single stem trees and near ground level for multi-stem trees. At this stage it is generally represented by a circle centred on the tree's stem.

3.5 Construction Exclusion Zone (CEZ)

The CEZ usually consists of a fenced off area that encloses the RPA of trees to be retained.

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3.6 Survey Conclusion

Generally, the majority of trees on site are not suitable for their position. Many of the boundary trees have been planted to form a hedge but they are not of a species that can be readily trimmed to create a sustainably dense screen. In addition the central area of the plot is too heavily planted to allow any of the trees to develop into good form.

With the exception of T1, a category B tree covered by a preservation order, all the trees are either Category R or C. Any dramatic change in the growing environment of T1 will increase the likelihood of planning refusal.

The R category trees are likely to have less than 10 years of Safe Useful Life Expectancy (SULE) irrespective of development. In accordance with BS5837 these trees can be removed without a requirement for replacement if they are within ownership of the site and therefore it is not necessary to consider their RPA. However, where the trees belong to a neighbouring property this can become a slightly grey area:

3.5 Providing a neighbour's trees are not covered by a tree preservation order or in a conservation area there is nothing to stop the site owner from removing overhanging branches or roots encroaching across the site boundary. This may however cause unnecessary friction with the tree owners and have a possible long term affect on the health of the trees. If a tree that has suffered such damage were to fail and cause harm it may be possible for those responsible for the damage to be held liable in negligence. I would suggest that negotiations are pursued with neighbours before their trees are considered in plans that may cause them damage. To add a further complication, none of the neighbour's R category trees are currently immediately dangerous but it appears that some of the smaller trees in G15 have failed at ground level and are relying on the support of the existing adjacent building. If this building is removed as part of the development the trees will need to be removed also. This may leave the group looking gappy and reduce its efficiency as a screen. This and the other defects listed in the schedule included as Appendix has led me to give the whole group an R category. If after negotiations and immediately unsafe trees are removed the neighbour wishes to retain the rest of the hedge it would be necessary to protect a rooting area that extends into the site by 2m.

3.6 Similar applies to the C category G38 that is outside ownership of the site. However the group's higher quality would make it even harder to justify impinging on its root or crown spread. I would advise that it should assist in obtaining planning permission if the proposal can avoid impinging on these trees. Where this is unavoidable it may be possible to negotiate removal and replacement with the tree owners.

3.7 The remaining trees within ownership of the site are C category. Although BS5837 does not insist on the replacement of C category trees I would advise it may be beneficial to do so where there is sufficient space to allow future healthy growth.

The following Arboricultural Implication Assessment and Arboricultural Method Statement will take into account the permitted development design layout and clarify whether this site is suitable for development in relation to trees.

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4. Arboricultural Implications Assessment (AIA) and Tree Protection Plan (TPP)

The AIA is a study to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of the proposed site layout. It will assist in the preparation of a Tree Protection Plan.

Scope of the AIA

- Superimpose the proposed site layout onto the TCP.
- Assess the conflict between existing trees and the proposed site layout.
- Highlight trees that will need to be removed or are likely to be detrimentally affected by the site layout or expected construction process.
- Highlight trees that may affect the finished site in the long term.
- Suggest options to mitigate tree damage.
- Prepare a TPP showing trees to be retained and positioning of protective fencing.

4.1 The affect that the proposed site layout and construction process will have on the trees and options to mitigate damage.

4.1.1 The widened access drive to the site will impinge on the roots and stem of T1 to the point where it would not be viable to retain. This is a B category tree. **Mitigation: Remove tree and replace with a large container grown specimen. A large Pine (5-6m tall) would be very expensive due to lack of availability. An evergreen tree of vaguely similar form that might be considered as a replacement is the Holm Oak. Barcham's Trees (01353 720 748) have 6m+ specimens at a much more reasonable price. It would be necessary to specify a detailed planting and maintenance scheme to ensure that the tree survived and in the mid to long term replaced the crown cover of T1.**

4.1.2 The position of the proposed building will require the removal of 13 No. category C trees. **Mitigation: The position of a suitable amount of relatively large replacements for the available space is shown on drawing M219TPP.**

4.1.3 The possible removal of G15 will remove the screen provided by the hedge. **Mitigation: Plant a replacement hedge of Laurel that can be trimmed to maintain a very dense screen that will establish well in the potentially shady planting environment. If after negotiations with the tree owners G15 is retained. It will be necessary to protect the RPA indicated on M219TPP in this area during the construction process and use no-dig methods to provide a footpath over the RPA in the long term. I would suggest that a cellular confinement system is used before excavations or heavy plant is allowed access to the site. A suitable system is specified in the Arboricultural Method Statement included as Appendix 2.**

4.1.4 There is a risk that retained trees T30, 32, 33 and G38 will incur damage during the construction process. **Mitigation: Erect protective fencing immediately after permitted treework and before access of heavy plant on to the site. The position of protective fencing is shown on M219TPP. Suitable protective fencing is specified in the Arboricultural Method statement included as Appendix 2 and the drawing excerpt form BS5837 included As Appendix 5.**

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4.2 The affect that retained and replacement trees are likely to have on the end use of the finished development

Due to the orientation of the site there is a risk that replacement planting will prohibitively shade the new development. **Mitigation: Plant with deciduous trees. Recognised projected changes in our climate over the next few decades could make summer shade very welcome. The choice of leafless trees in the winter will reduce shade at this time of the year.**

If G15 is retained there is a risk that the proximity of buttress roots will mean that an increase in their girth may lift any light surfaces laid over them. **Mitigation: Monitor and seek advice from a qualified arboriculturist if this occurs.**

4.3 Options to further mitigate damage

4.3.1 Arboricultural supervision

For this site I would recommend a visit by a qualified arboriculturist to supervise at the following points in the construction process:

- To ensure that protective fencing has been erected at the correct time and to the correct specification
- Possibly to ensure that mature tree planting is carried out to specification

I could make visits and record findings or advice at my standard hourly rate.

4.3.2 Regular inspections

In the long term regular inspections would maximise the safe useful life expectancy of retained and replacement trees and ensure that the tree owner's discharge their duty of care.

4.3.3 Replacement Planting

Ground should be prepared to BS4428: (1989), Code of Practice for General Landscape Operations before the commencement of planting.

I have made some suggestions for suitable replacement planting taking into consideration soil type and expected sunlight exposure on drawing M219TPP

I can provide more detailed planting specifications if planning permission is granted at my standard hourly rate.

5. Conclusion: Suitability of site for development in relation to trees

Although development would mean much of the generally poor quality tree cover on the plot would be lost in the short term, the measures specified in this report should ensure that it is replaced with a reasonable amount of sustainable, higher quality planting in the mid to long term.

Therefore I would consider the site reasonably suitable for development in relation to trees.

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6. Other considerations

6.1 Statutory Protection of Trees

If full planning permission is granted, it wil not be necessary to obtain separate consent for tree works which are required to implement the planning permission. However, works to protected trees (either covered by a preservation order or within a conservation area) which are not required to implement the planning permission must be the subject of a separate application or notification to the LPA.

6.2 Wildlife

Over recent years there has been new legislation concerning the protection of wildlife.

The Wildlife and Countryside Act 1981 and Countryside and Rights of Way act 2000 mean that it is an offence to wilfully or recklessly harm a bird nesting site, bat roost, certain mammals and some rare plants.

There did not seem to be any evidence of nesting birds or bat roosts on this site but a further inspection should be made by a suitably qualified agent of the developer or tree surgery contractor before any tree-work is carried out. If a nest or bat roost becomes evident the developer should contact Natural England wildlife Licensing Unit (0845 601 4523) for further advice.

7. References

BS5837:2005. Trees in Relation to Construction.
SULE. Jeremy Barrell.
P.G. Biddle: Tree Root Damage to Buildings.
BS4428: (1989), Code of Practice for General Landscape Operations

Cascade chart for tree quality assessment (extract from BS 5837: 2005)

TREES FOR REMOVAL

Category and definition	Criteria	Identification 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	• 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), NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).	DARK RED

TREES TO BE CONSIDERED FOR RETENTION

Category and definition	Criteria — Subcategories			Identification on plan
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
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)	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)	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)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
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	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)	Trees present in numbers, usually as groups or woodlands, 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	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
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 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	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 150 mm should be considered for relocation			

ANNEX 3

TCP Tree Schedule- see drawing M219TCP

Tree No.	Species	Height (m)	Stem Dia. (mm)	No. of stems	Branch Spread (m) N,E,S,W				Height of crown clearance (m)	Age class	Physiological condition	Structural condition And comments.	Preliminary management recommendations to ensure SULE is at least 10 years.	Estimated remaining contribution (years)	Cat.	RPA Radius (m)
T1	Pine	12	550	1	3.5	3.5	3.5	3.5	6	m	Good	Fair. Lost leader in past. Co-dominant stems developing.	None at present	20-40	B	6.6
T2	Hawthorn	5	80	1	1	1	1	1	2	y	Good	Good	None at present	20-40	C	.96
T3	Eucalyptus	12	400	1	6	5	3	3	5	y	Good	Fair. Very close to boundary	None at present	10-20	C	4.8
T4	Blue cedar	8	260	1	3	1	1	2	3	y	Good	Fair. Suppressed by T2. No central leader.	None at present	10-20	C	3.12
T5	Spruce	7	80	1	.5	0	.5	.5	2	y	Fair. Very suppressed.	Fair	Remove	<10	R	-
T6	Spruce	8	120	1	.25	.25	.25	.25	3	y	Good	Fair. Too close to boundary.	Remove	<10	R	-
T7	Lawson cypress	5	160	ms	.5	0	0	.5	2	y	Poor. Suppressed	Poor	Remove	<10	R	-
T8	Spruce	8	90	1	.25	.25	.25	.25	3	y	Poor. Suppressed	Poor	Remove	<10	R	-
T9	Spruce	8	120	1	.25	.25	.25	.25	3	y	Poor. Suppressed	Poor	Remove	<10	R	-

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ANNEX 3

Appendix 4
Comments and additional tree-work plus mitigating measures to allow development in relation to trees
See drawing M219TPP

Tree No.	Species	Structural condition And comments.	Preliminary management recommendations to ensure SULE is at least 10 years.	Comments and additional tree-work to allow development	Mitigating measures to minimize damage to trees during development	Cat.
T1	Pine	Fair. Lost leader in past. Co-dominant stems developing.	None at present	Widened driveway will impinge on RPA too much to make retention viable.	Replace with a 25-30cm girth Holm Oak at least 2m in from the new widened driveway.	B
T2	Hawthorn	Good	None at present	Within footprint or close proximity of proposed building. Remove tree and roots.	See suggested replanting scheme on Drawing M219TPP	C
T3	Eucalyptus	Fair. Very close to boundary	None at present	Within footprint or close proximity of proposed building. Remove tree and roots.	See suggested replanting scheme on Drawing M219TPP	C
T4	Blue cedar	Fair. Suppressed by T2. No central leader.	None at present	Within footprint or close proximity of proposed building. Remove tree and roots.	See suggested replanting scheme on Drawing M219TPP	C
T5	Spruce	Fair	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R
T6	Spruce	Fair. Too close to boundary.	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R
T7	Lawson cypress	Poor	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R
T8	Spruce	Poor	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R
T9	Spruce	Poor	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R
T10	Spruce	Good	None at present	Within footprint or close proximity of proposed building. Remove tree and roots.	See suggested replanting scheme on Drawing M219TPP	C
T11	Spruce	Good	None at present	Within footprint or close proximity of proposed building. Remove tree and roots.	See suggested replanting scheme on Drawing M219TPP	C
T12	Spruce	Poor	Remove	R category. Less than 10 years Safe Useful Life Expectancy	Not necessary to Replace.	R

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ANNEX 3