a f r i c a
Arboriculture and Forestry: Research and Consultancy

Consultancy report regarding construction proposals at 27 Mile Oak Road, Southwick BN424QG to ensure accordance with BS5837:2012 'Trees in relation to design, demolition and construction- Recommendations'

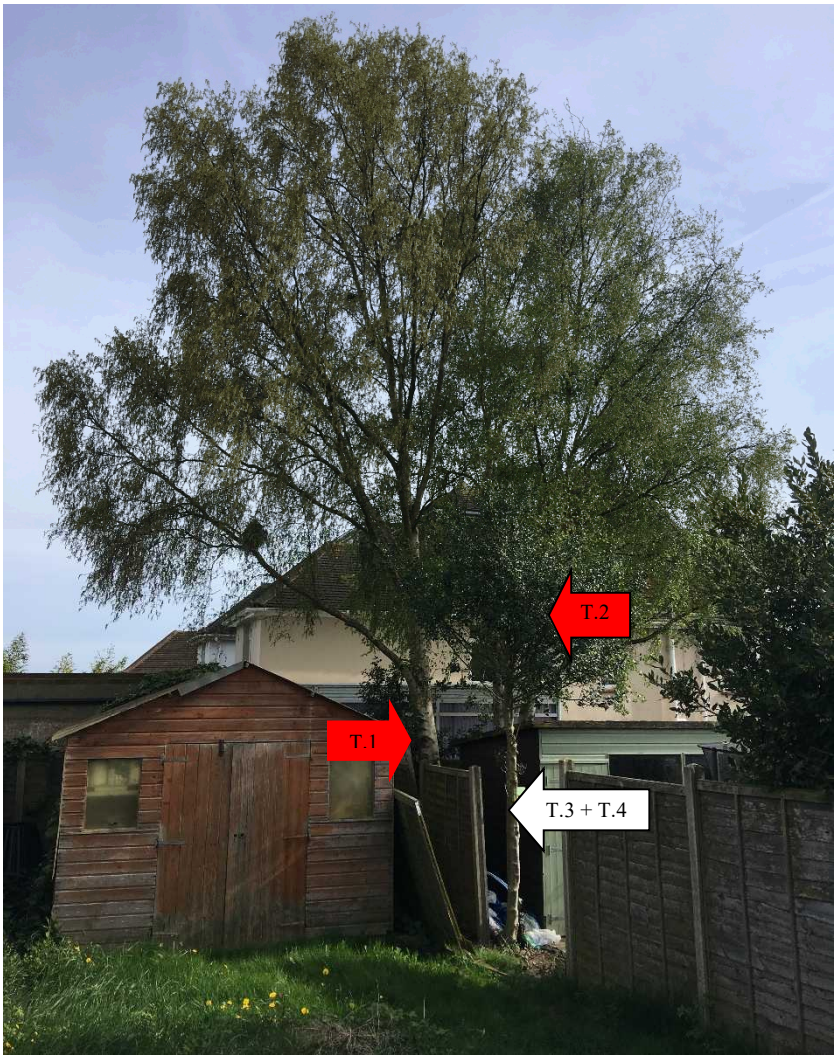

Photo 1: Southern end of garden at 27 Mile Oak Road. Trees T.1, T.2, T.3 and T.4, Birch and Holly trees (T.1 subject to Tree Preservation Order) in garden at 25 Mile Oak Road BN424QG, Photo aspect: South. Brown shed occupies the approximate position of proposed garden office structure.

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Introduction

I have been asked by Dean Murphy of 27 Mile Oak Road, Southwick, to write an Arboricultural Survey to the specification of British Standard 5837:2012, in order to accompany planning proposals regarding the construction of a garden office at the end of the back garden of that house.

There are no trees in the garden of 27 Mile Oak Road, but immediately to the Southwest, in the garden of Number 25 Mile Oak Road, there are 2 Silver Birch trees and 2 Holly trees close to the proposed structure.

I have visited the site, surveyed the trees, the surrounding structures and surfaces and studied the plans of the proposed new dwelling. The survey report and my opinions and recommendations follow below.

The Construction Proposals and the existing Trees

It is proposed to construct a new office room at the South end of the garden of the existing house in Mile Oak Road. The site and proposed new room, the tree locations and the approximate extent of tree crowns are shown below in Drawing 1. The vital statistics of the trees are shown here in Table 1, and the trees are shown in Photo 1.

Tree No.	Genus and common name	Height m approx.	Dbh cm	RPA radius m	Crown N m approx	Crown E m approx	Crown S m approx	Crown W m approx	Retention category
T.1	*Betula* Silver Birch	12	28	3.4	3	4	2	1	U *TPO*
T.2	*Betula* Silver Birch	10	30	3.6	2	3	3	3	B
T.3	*Ilex* Holly	4	8	1.0	1	1	1	1	B
T.4	*Ilex* Holly	4	7	0.9	1	1	1	1	B

Table 1: Trees in garden at 25 Mile Oak Road, adjacent to proposed garden office development

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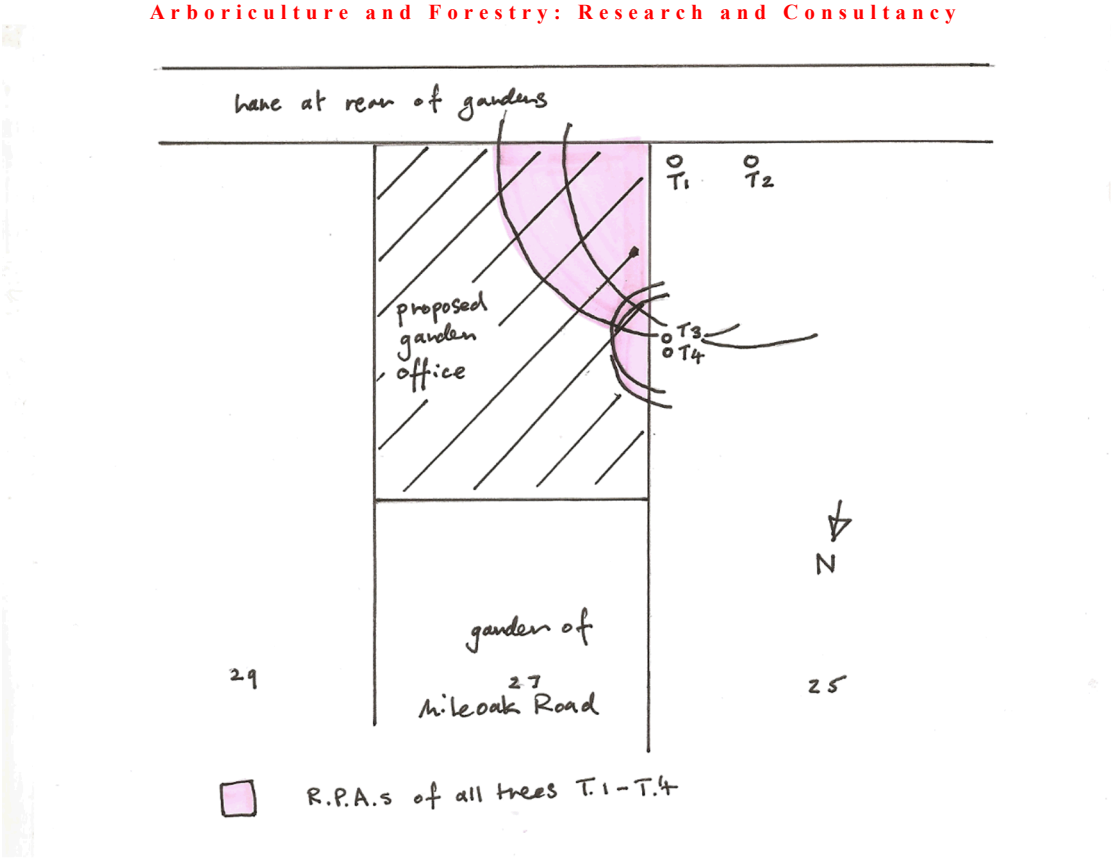

Sketch 1: the rear gardens of 29, 27 and 25 Mile Oak Road showing proposed structure and relevant trees and their RPAs

Notes:

Tree T.1 is believed to be subject to a Tree Preservation Order.

Dbh refers to 'Diameter at breast height' ie 1.5m from ground

RPA is 'Root Protection Area' as defined by BS5837, within which construction activity is especially constrained.

Retention Category is defined by BS5837; Category U trees have a serious structural defect, such that their early loss is expected, or are infected with pathogens of significance to the health or safety of other trees nearby.

Category B trees are of moderate quality with an estimated remaining life expectancy of at least 20 years

Root Protection Areas (RPAs)

British Standard BS5837 recognises that the great majority of tree roots are to be found in the upper levels of soil surrounding a tree, and that these are the most vulnerable to damage during the construction process. Thus Root Protection Areas are to be determined under BS5837 within which construction activity and soil disturbance is to be avoided. The RPAs are zones about the trees with areas equal to circles of radius 12 times the diameter of the tree trunk at 1.5m from the ground. Thus a tree 1m wide at 1.5m above the ground will require a Root Protection Area of a circle of 12m radius, or an equivalent area, predicated on the likely position of the tree's roots.

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The trees at 25/27 Mile Oak Road, the RPAs, and the proposed garden office.

There are 4 trees relevant to the proposed construction at 27 Mile Oak Road. There are 2 Silver Birches at the very rear of the garden of Number 25 (T.1 and T.2), and 2 Hollies (T.3 and T.4) on the boundary with 27 about 4 metres from the rear fence (see Sketch 1, above).
It is understood that T.1 is subject to a Tree Preservation Order.
The Root Protection Areas of all 4 trees conflict with the proposed structure; about 20% of the RPA of T.1 is affected, and about 10% of that of T.2. About 30% of the RPAs of T.3 and T.4 are affected.
T.1, however, the Silver Birch nearest to the proposed office, subject to a TPO, is badly infected with at least two conditions that seriously threaten its structural stability (see Photos 2 and 3, below)



Photo 2: lower trunk of T.1 showing evidence of probable *Phythopthera*. Photo aspect: East

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Photo 3: fungal fruiting bodies at rear of T.1, possibly *Heterobasidium annosum*. Photo aspect: East

As seen above, in Photos 2 and 3, tree T.1 is suffering from serious infection at the lower trunk, the extent of which is not determinable without further expensive investigation. However I suspect the weeping red stained sap shown in Photo 2 to be indicative of Bleeding Canker, or *Phythopthera* infection. I think the fungal fruiting bodies shown in Photo 2 are of *Heterobasidium annosum*, a root and stem rotting fungus. Either of these infections is likely to be seriously structurally damaging to a Birch of this age.

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The proposed structure and the RPAs

It is proposed to build the garden office on a foundation of traditional entrenched concrete. The excavations required for such foundations would be extremely damaging to the roots of T.1, were it a viable tree in the long-term. However, given the evidence of the poor health of T.1 shown above, it is likely that permission to fell such a diseased tree would be given by Adur District Council Planning. In this situation T.1 and its RPA are no longer relevant.
There would still be conflict with the RPAs of T.2, T.3 and T.4, however.
In the case of T.2, it may be argued that the proportion of RPA that conflicts with the excavation is relatively small, and that little damage would be done to tree health if excavation of delicate roots is correctly undertaken as specified in BS 5837 (2012).
In the case of T.3 and T.4, it may be suggested that the Hollies are of such small dimensions as to be upliftable and transplantable. BS 5837 allows for the transplantation of small trees under 150mm dbh; T.3 and T.4 are 80mm and 70mm respectively.
Thus the existing proposal may be viable, provided that T.1 is considered to be no longer significant, T.2 viewed as unlikely to be damaged and that T.3 and T.4 may be moved.
However other solutions are possible: see below.

Other solutions to the Foundation/RPA conflict

1. Piled foundation
   The conflict between the RPAs of the trees and the proposed structure could also be resolved by the use of a piled foundation. Whereas a strip foundation is certain to sever the radial surface roots emanating from the trunk of the tree, piles inserted vertically through the roots will only minimally damage a small proportion of such roots; the structure being supported on beams on top of the piles. Mini-piles suitable for the light duty required for a structure such as this garden office may be hand-installed and are available from companies such as UK Helix.

2. Relocation of the structure
   The simplest solution to the RPA/foundation conflict is to shift the structure. If the location of the garden room was to be moved about 5m North it would be beyond the Root Protection Areas of all of the trees in the garden of 25 Mile Oak Road.

Conclusion

It is my opinion that if any of the solutions outlined above are followed, the development proposals for the garden office at 27 Mile Oak Road may be completed in accordance with the British Standard 5837:2012 *'Trees in relation to design, demolition and construction -Recommendations'*.
If any further clarification is required please do not hesitate to contact me by phone or email.

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