

# Arboricultural impact assessment and BS5837 survey of The Kings School, Fair oak, SO50 7DB

Carried out by Matthew Rowden on behalf of Peter Yeates  
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# PETER YEATES

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**3. Instruction**

To assess trees on the site for any potential impact that the proposed development may have on them, and the constraints that the trees may pose on the proposals. This is in accordance with current legislation BS5837:2012, and to implement control measures and/or design alterations to the proposals where necessary. A scheme has been devised to provide replacement planting in liaison with the clients and other members of their consultant team.

**4. Limitations**

This survey is valid for 1 year, dependent on changing site conditions. I must be kept in direct supervision of the site at all times in regards to all arboricultural matters in order for the findings in this report to remain valid.

**5. Site details**

The site is an independent school located to the south of Allington Lane near Fair Oak. The proposals involve the removal of a small number of trees and some hedgerow located close to the school on-site parking courtyard and other trees to the north of the school site adjacent to the

North Boundary. The clients have liaised with Vistry Housebuilding in respect of the trees adjacent to the North boundary. (See correspondence at Appendix 4)

## 6. Legal restrictions

The entire site is covered by a blanket TPO, so there are significant legal constraints to pruning or felling any of the trees on the site.

## 7. Proposals

The proposal is for a new Primary School to replace the existing Primary School which is currently accommodated in two timber buildings. The larger of the two timber buildings is proposed to be removed as it is no longer fit for purpose and the smaller timber building is to be retained for use as a music and drama studio for the whole school.

The new Primary School building would be positioned adjacent to the north-east corner of the existing Main School building and served by an amenity terrace, laid to permeable surfacing, along its southern aspect. A playground, with permeable surfacing, is proposed to be laid to the south-west of the smaller timber building to be retained.

Together with the removal of the larger timber building from the school site, the proposals will allow the existing limited parking within the school campus to be expanded to provide a total of 27 parking spaces in the form of a parking courtyard. There will also be space to improve and formalise the pedestrian and cycle access to the school buildings and playground etc..

All the proposed hard-standings will be laid to permeable surfaces.

## 8. Drawings and documents

The client has provided detailed drawings and documents for the purposes of this assessment. For ease of identification, the trees relevant to this report have been numbered as T1- TG10.

Please note: the trees identified as TG4 are not a constraint to the proposed development but are included in this assessment as a measure of good practice. They have been plotted on a tree protection plan obtained from Ordnance survey to show how and where protection measures must be implemented.

## 9. Summary

The proposed new Primary School building and hard standings (playground and amenity terrace) will not impact on any root protection areas (RPAs) of the retained trees, and there will be net ecological and amenity gain to the site with the replanting scheme.

The proposals to improve the on-site parking and pedestrian and cycle access are constrained by some trees (T2, TG10) adjacent to the existing school driveway and on-site parking and also by some of the trees (TG3) on land to the north of the school site.

The trees (T2, TG3, TG10) are assessed as being of low value and provide only moderate screening with the residential properties in the surrounding area, but very little in the way of amenity value. The majority of the trees within TG3 are highly susceptible to *Hymenocyphus fraxineus*, with a significantly shortened lifespan as a result.

Under the line of trees (TG3) there is a recently planted hedgerow of mixed native trees (saplings) as part of the landscaping for the housing development. The health of the new native hedgerow will be greatly improved by the proposed removal of the trees (TG3) and allow the hedgerow to grow upwards and thicken much more quickly, meaning that alongside the replanting scheme, there will be no loss of screening.

Located further behind the recently planted native hedgerow and nearer to the housing there is a large copper beech tree and a sweet chestnut and some beech saplings and hedging that are becoming established. There will be no impact to these trees arising from the proposals. The copper beech and sweet chestnut will continue to provide a good level of screening while the recently planted native hedgerow, honorary native hornbeam and non-native sweet gum standards are established.

A replacement planting scheme of native, honorary native and non-native species has been agreed with the clients' appointed Ecology Consultant on the basis that this will be at least double the amount of planting as removed.

The trees proposed to be removed have been checked by the school's appointed Consultant Ecologist who found that none of the trees had any cracks, crevices or fissures that would be suitable for bat roosting. Authorisation to remove the trees (TG3) on the land to north has been given by the landowners, Vistry Housebuilding, as per the email correspondence included at Appendix 4.

The amenity value of the site would be greatly improved by the proposed removal of the trees in conjunction with the proposed replacement planting scheme (see the submitted proposed landscaping and planting plan).

The remainder of the trees surveyed on the site pose no impacts and may be protected with tree protective fencing.

## **10. Findings (please see appendices 2 & 3 for specific details)**

### **A. Identification of the constraints posed by the trees to developing the site under the current proposal.**

#### **T2, TG3, TG10**

- i. Significant constraints posed: the RPA of all these trees would overlap the footprint of the proposed extended parking area, exceeding the 20% of permanent hard surfacing within the RPA permitted by BS5837:2012.

- ii. The species are predominantly ash trees, which with the prevalence of *Hymenocyphus fraxineus* makes them unlikely to fully reach maturity and their full potential. In the meantime, I do not consider them worthy of retention in the context of a school car park.
- iii. These trees are all low value specimens.

**All remaining trees:**

- iv. No constraints posed.

**B. Potential impacts of the proposal on the tree**

**T2, TG3, TG10**

- i. Work is necessary within the RPA of these trees.
- ii. Run off from cement mixing, fuel spills and other contaminants can cause root death, loss of nutrient uptake, stress, and if enough of the functional root mass is killed, the tree may die.
- iii. The rooting area of this tree is in the top 600mm of soil and very susceptible to compaction from vehicular movements. This can result in root death, loss of oxygen in the soil, reduced moisture percolation and diminished nutrient uptake, leading to stress and eventual strain. The standard excavation for highway and parking spaces is 700mm.
- iv. The overall excavated area would exceed the 20% permitted permanent hard surfacing within the RPA under BS5837 (including the existing hard standing).
- v. Tree roots are opportunistic, can grow back fully within three years (Cutler and Richardson 1981), and have likely extended underneath the existing structures.

**All remaining trees:**

- v. No impacts posed by the proposals.

**C. Potential impacts of trees on the current proposals**

**T2, TG3, TG10**

- i. The impact is the loss of amenity of these trees to the site.
- ii. These trees must be replaced with appropriate species and with a rigorous aftercare programme to ensure their success. The suggested species replacements are *Liquidambar styraciflua*, *Carpinus betulus fastigiata*, mixed native whip planting.

**All remaining trees:**

- ii. Tree protective fencing will be necessary.

**11. Conclusion**

The constraints presented by the trees on the site are minimal, so the impacts are negligible, providing that T2, TG3 and TG10 are felled.

The suggested replacement species are a mixture of native, honorary native, and non native species, kept to a species diversity of 2 so that a landscaping feature may be made from this row of trees. The choice is based on the idea that the trees may successfully reach maturity in that space without needing to be continuously pruned (hence the choice of fastigate species with 5m spacings), exhibit autumn colour (sweet gum), and have a reduced susceptibility to indigenous pests and diseases (sweet gum and hornbeam), whilst also providing native habitat for indigenous flora and fauna (native whip planting). I suggest 8-10 standard airpots as the most likely to succeed and establish quickly, with some degree of screening. I recommend mixed native whip planting in between these trees for the purposes of biodiversity and re-wilding.

The planting must take place after all work has been completed. Other trees may be planted around the site to compensate for the loss of tree cover in the North area of the site.

The issues for the method statement to address are:

- i. The highlighted trees require felling.
- ii. The remainder need to be protected with tree protective fencing.
- iii. The site office, tool and material storage must remain on the existing hard standing.

**12. Recommendations:**

Follow the AMS (appendix 3 below). Do not deviate and seek arboricultural advice whenever necessary.

- i. Fell highlighted tree groups.
- ii. Erect tree protective fencing as per plan.
- iii. Commence and fully complete build.
- iv. Replace felled trees as per TPP.



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Matthew Rowden *BTEC L3 NatDipArb, ABC L6 ProfDipArb*

10/11/2023

### 13. References

- a. BS5837:2012 - Trees in relation to design, demolition and construction
- b. TDAG 2014
- c. Cutler & Richardson 1981, Kew root survey.

**Appendix 1 - Tree protection plan (in DWG and PDF format)**

**Appendix 2 - Tree survey schedule (Ref PYA/KPS/RM/V1 schedule)**

**Appendix 3 - Arboricultural method statement with planting plan attached.**

**Appendix 4 - Email authorisation by Vistry Housebuilding dated 18.10.2023**

**Appendix 3**

# Arboricultural Method Statement for The Kings School, Fair oak, SO50 7DB

Carried out by Matthew Rowden on behalf of Peter Yeates  
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A R B O R I C U L T U R E L T D

## 1. Responsibilities

It is the responsibility of the site manager to respect the tree protection measures and observe the necessary precautions within and adjacent to them. Bonafide sub-contractors must be inducted by the site manager and the tree protection measures explained and enacted to the letter of this method statement.

As the arboriculturist appointed for this site, I must be present onsite prior to work commencing to ensure that my protection measures have been followed. I must be attend site whenever there are arboriculturally sensitive activities occurring, and must send regular supervision reports to East-leigh borough council with site meetings arranged if the planning officer or handling team so wish.

In this instance, I believe that I will need to visit site to check the fencing, and then final sign off on completion.

## 2. COSHH

- a. A cement mixing area will be sited away from the CEZ and if necessary a protective bund installed to prevent contaminated washings or rainwater draining into the CEZ.
- b. These will be positioned on the existing hard standing where marked on the TPP.
- c. Fuels or any other chemicals must be stored outside of the construction exclusion zone (CEZ) on the road.

## 3. Contractor parking and site office

- a. Contractor parking will be within the existing parking. No revisions to the highway for construction traffic will be necessary at this time.
- b. Site office will be the old home lodge.

## 4. Restrictions within Construction exclusion zone

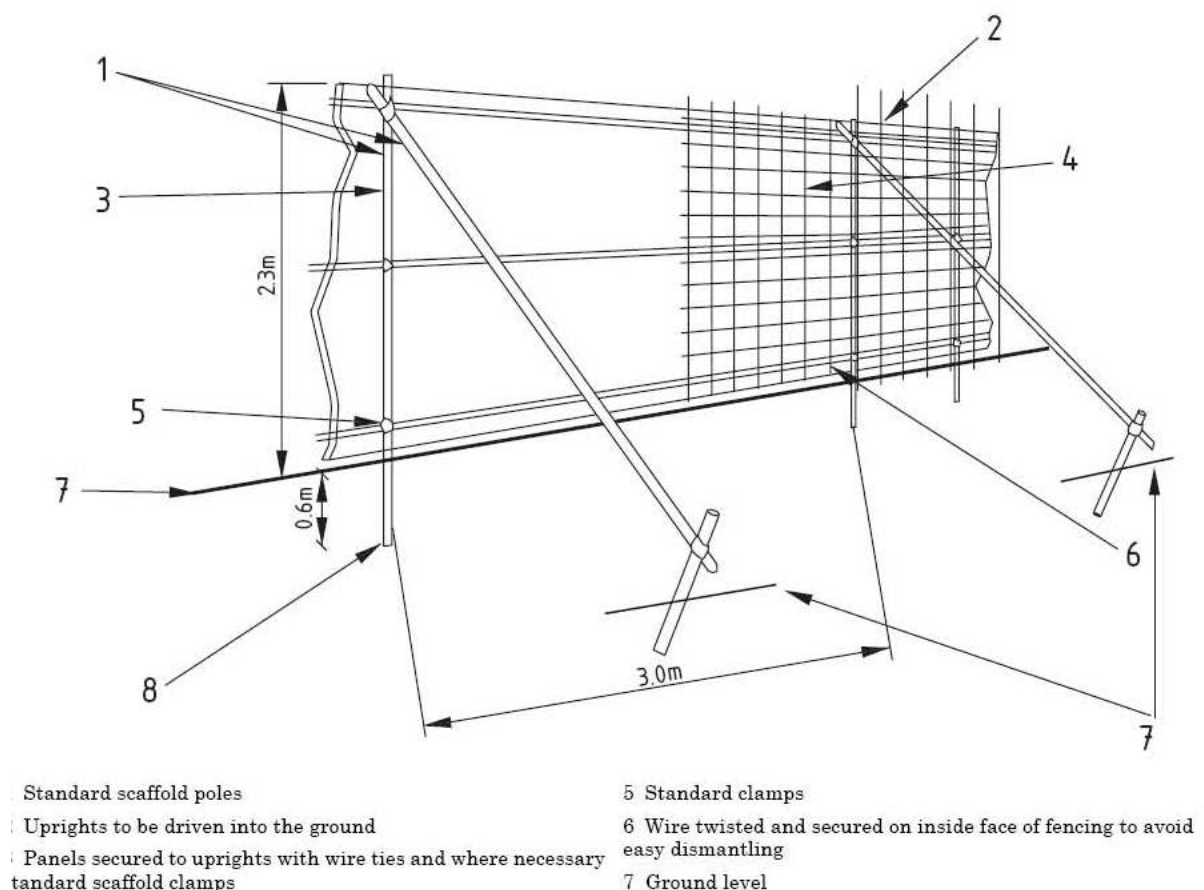
Inside the exclusion area of the CEZ, the following shall apply:

- a. No excavation by any means without arboricultural site supervision.
- b. No hand digging without a written method statement having first been approved by the developer's arboriculturist.
- c. No storage of plant or materials.
- d. No storage or handling of any chemicals.
- e. No vehicular access.
- f. No development activity.

## 5. Tree Protection Fencing

- a. The Tree Protection Plan (TPP) shows the position of the Tree Protection Fencing (TPF). Vertical banners must be erected and ground protection installed before any materials or machinery are brought onto site and before any demolition, development or strip-ping of soil commences.

- b. Once erected, barriers and ground protection will be regarded as sacrosanct, and will not be removed or altered without prior agreement of an arboriculturist and approval of the local planning authority.
- c. Barriers must be fit for the purpose of excluding constructive activity, and appropriate to the degree and proximity of work taking place around the retained tree. Attention must be paid to ensuring that barriers remain rigid and complete.
- d. Barriers will consist of a scaffold framework in accordance with Fig.1, comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld mesh panels must be securely fixed with wire or scaffold clamps.
- e. Weld mesh panels on rubber or concrete feet are not resistant to impact and must not be used.
- f. The tree protective fencing must be erected prior to commencing any work on the site, and must remain in situ for the entire duration of the development, until all final work has been completed and the site has been signed off by the site arboriculturist.
- g. All weather notices must be fixed to the barriers with the words: 'Construction exclusion zone - Keep out' or similar (see above image).
- h. It is vital that these protection measures are in place before any construction work happens.



## 6. Sequence of events

1. Fell T2, TG3 and TG10.
2. Erect tree protective fencing as per tree protection plan and method statement.
3. Install storage area and contractor parking, as per the locations shown on the tree protection plan: allow a minimum of a 1.5m working area between the TPF and the proposals.
4. Install site access via route shown on the TPP. This site access route is to remain outside of all tree RPAs and is to accommodate excessive loads such as cranes and other large plant and equipment that may be necessary for the build. Services will follow this route, rather than any trenching or excavation within the RPAs of any of the trees.
5. Commence and fully complete build.
6. Remove tree protective fencing.
7. Replace trees using the following MS:

### **Airpot 8-10 standard trees**

#### Planting method

1. Prepare the site: trees will be lifted in the dormant season, so the ground may be frozen or waterlogged. Lift any turf or leaf litter and ensure that the soil is moist, friable, aerated and not frozen or waterlogged.
2. The tree is best planted soon after lifting to prevent storage and in a loamy clay soil before the heat has gone out of the ground.
3. Improve the soil as necessary, up to and including digging a wider pit than the root stock may need and replacing the topsoil within it, with good quality, aerated topsoil. The pit must be square, and matched to the root ball size in terms of depth and width.
4. Lift the standard, and transport to site with all appropriate precautions taken as per BS8485 to protect the root stock and ensure minimal damage to the tree.
5. Check the tree on site for any damage to the stem, branches or roots. If it does not meet the specifications laid out in BS 3936, send it back.
6. Plant the tree and back fill the hole with topsoil to the level of the root flare . Ensure the tree is not planted too shallowly or too deeply. The hole must be square to prevent girdling.
7. The sub soil must be rootable, aerated and friable. It must conform to BS8601:2013, and fall into the categories of either calcareous or acidic based on its pH. The tree species must be tolerant of these conditions.
8. The exchangeable sodium percentage (ESP) of this subsoil must be less than 2800 us/cm, and an ESP of up to 15% providing the subsoil comprises of <35% clay is acceptable. This is a measure of the exchangeable sodium ions relative to the total exchangeable ions in the subsoil.
9. Apply gypsum as an ameliorant if the ESP exceeds 15%.
10. Top soil must be carefully placed around the roots of the standard to ensure no voids, and firmed in by hand or ball of foot gradually in layers as the hole is backfilled.

11. Secure the tree with a low stake at approximately 1/3rd the total height of the tree, and a tree tie in the direction of the prevailing wind. The stake must be driven in to the hole before the tree is planted
12. Mulch around the base of the tree in a 1m radius with a 100mm layer, keeping the area around the stem clear with well rotted wood chip.

### Post planting aftercare

#### Year 1

1. Water in immediately, and then water weekly, unless there has been three or more days of no rain, in which case water every three days. This can be carried out by hand, with a hose.
2. Replenish the mulch as required at the beginning of the growth season.
3. Hand weed around the area that the tree has been planted to prevent competition.

#### Year 2

1. Water the tree weekly. The arboricultural association recommends 60-100litres per visit, which seems excessive. This link :<https://www.deeproot.com/blog/blog-entries/how-much-should-you-water-your-tree/> suggests 7.6 litres per caliper inch diameter during the growth season twice a week for year 1, then once a week from then onwards.
2. Replenish the mulch around the stem to a depth of 100mm.
3. Hand weed around the area.
4. Conduct formative pruning where necessary to achieve the tree's maximum potential.
5. Check for pests and diseases and apply pesticides where necessary.

#### Year 3

1. Water fortnightly.
2. Replenish mulch.
3. Check stake and tree tie to ensure they are still offering adequate support.

#### Year 4 and onwards

1. Irrigation should no longer be necessary. Irrigate in periods of prolonged drought only.
2. Remove stake and tie.

### **Native whip planting (double row of staggered 30cm spacings in between the 8-10 standard trees)**

#### Tree species and percentages

1. *Crataegus monogyna*: 20%
2. *Quercus ilex*: 15%
3. *Corullus avellana*: 15%
4. *Malus sylvestris* 20%
5. *Rubus fruticosus*: 10%
6. *Prunus avium* 10%
7. *Rosa canina* 10%

#### Planting method

1. Prepare the site: apply a foliar application herbicide to the cut stems such as glyphosate. Treat twice over two weeks to ensure effective killing of all weeds
2. Cut the dead weeds to ground level using trimmers or flails as applicable (depending on the thickness of the weed stems) in late September.
3. Cultivate the site using a shallow plough to make it ready for the green manure.
4. The following Spring, sow the newly cultivated soil with mustard seeds and ryegrass to act as a green manure for the site preparation.
5. The following November, cultivate the green manure back into the soil.
6. The following February/March, lift the bare root transplants and move to the site, with the roots protected and the trees stored in line with BS8485.
7. Plant the trees on the site in 2m x 2m spacings using a T-notch technique with a spade.
8. Apply see through, perforated biodegradable guards and canes to the newly planted transplants (unless there is a vole threat on the site).
9. Avoid planting in overly wet, cold or dry conditions.

#### Post planting aftercare

##### February - March

Mulch the area around the trees with a 100mm layer of well rotted wood chip or leaf mulch to keep the weeds down initially, promote soil aeration and enrichment, following a radius of 1x the height of the newly planted tree.

##### April - September

Monitor weekly, and if there are three or more days without rain, irrigate by hand using a hosepipe.

##### September to the following February

Monitor the newly planted trees for any pests and diseases: irrigation will not be necessary during the winter months.

After any extreme weather conditions (severely low temperatures or storms), conduct a cycle of firming in after frosts or wind rock.

## Year 2

### March

Re-apply mulch around the base of the newly planted trees to provide a 100mm layer, keeping it well clear of the root flare at the base of the trunk.

Remove and replace any trees that have failed in the last growth season (also known as beating up).

Check spiral guards and canes are still intact.

### April - September

Water the newly planted trees using a hose if there has been a week or more of no rain.

Apply a selective spray herbicide that only targets broadleaved weeds in July to keep any competing weeds and competition under control.

### September - February

Monitor the newly planted trees for any failures, insect colonisation, pests and diseases, bacterial/fungal infections, and wind desiccation.

## Year 3

### March

Ensure spiral guards are still intact. Remove canes.

### April - September

Water trees if there has been more than two weeks of drought conditions. By this time, the trees should be self sustaining in terms of water uptake.

### September - February

Carry out formative pruning to the trees to establish apical dominant stems, and remove and replace any weak or dying specimens, especially in the woodland edge as holes are not wanted as the wind can be funnelled through them.

**IT IS VITALLY IMPORTANT THAT ALL TREE PROTECTIVE MEASURES ARE FOLLOWED, IN THE ORDER STATED IN THIS DOCUMENT. PLEASE DO NOT DEVIATE FROM EITHER DOCUMENT.**

