barrell TREE CONSULTANCY

# Arboricultural Assessment & Method Statement

## 2 Provost Road, Chalk Farm, London

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## Report purpose

This is a BS 5837 compliant arboricultural assessment report providing sufficient information for the Local Planning Authority ("LPA") to consider the effect of the proposed development on local character from a tree perspective. It includes an analysis of how trees will be affected and an arboricultural method statement describing how retained trees will be protected and managed during the development activity. It is fully in line with the BS 5837 advice relating to the planning application stage of the process highlighted in Table B1 reproduced below:

Table B. 1 Delivery of tree-related information into the planning system

| Stage of process | Minimum detail | Additional information |
|---|---|---|
| Pre-application | Tree survey | Tree retention/removal plan (draft) |
| Planning application | Tree survey (in the absence of pre-application discussions) | Existing and proposed finished levels |
| | Tree retention/removal plan (finalized) | Tree protection plan |
| | Retained trees and RPAs shown on proposed layout | Arboricultural method statement - heads of terms |
| | Strategic hard and soft landscape design, including species and location of new tree planting | Details for all special engineering within the RPA and other relevant construction details |
| | Arboricultural impact assessment | |
| Reserved matters/ planning conditions | Alignment of utility apparatus (including drainage), where outside the RPA or where installed using trenchless method | Arboricultural site monitoring schedule |
| | Dimensioned tree protection plan | Tree and landscape management plan |
| | Arboricultural method statement – detailed | Post-construction remedial works |
| | Schedule of works to retained trees, e.g. access facilitation pruning | Landscape maintenance schedule |
| | Detailed hard and soft landscape design | |

## Validation statement

For LPA validation purposes, this report includes:

- a **BS 5837 compliant tree survey**, including a tree protection plan showing the location of the existing trees, their categorisation, the location of the proposed structures and the tree protection measures;
- an **arboricultural assessment** in Section 1, which describes how the development proposal will affect local character from a tree perspective;
- an **arboricultural method statement** in Section 2 describing the tree protection and management measures, and how they should be implemented; and
- two **appendices** in Section 3 setting out the background administrative information and a schedule of tree information.

## The tree protection plan (BT1)

More specifically, the tree protection plan is based on the provided information and it should only be used for dealing with the tree issues. It shows:

- the existing trees numbered, with high/moderate categories (A & B) highlighted in green triangles and low/unsuitable categories (C & U) highlighted in blue rectangles;
- the site specific interpretation of root protection areas ("RPA") of category A, B and C trees (grey circles);
- the location of the construction exclusion zone ("CEZ"), which is the area of restricted access, to be protected by temporary barriers (fencing); and
- the location of the precautionary area outside the barriers where ground protection will be installed in addition to the undertaking of careful operations to remove the existing garden structure and establish the proposed garden room.

# Summary

## 1. The development proposal

The development proposal is to establish a self supported garden room within the rear garden and construct an extension to the rear of the existing residential property at 2 Provost Road, Chalk Farm, London.

## 2. Background administrative information

Our instructions, how we prepared this report and other relevant background information is explained in Appendix 1. All the trees that could be affected were inspected and that information is listed in Appendix 2.

## 3. Table 1: Summary of category A, B and C trees to be protected using special precautions

| | British Standard 5837 Category | | |
|---|---|---|---|
| | A (High quality) | B (Moderate quality) | C (Low quality) |
| **Protect using special precautions** | - | 3 | 4 and 5 |

## 4. Table 2: Extra precautions in addition to primary protection using barriers

| Activities requiring extra precautions | Tree number(s) |
|---|---|
| Pollution control near retained trees | All trees |
| Installation of appropriate ground protection to enable construction activity within garden area | 3, 4 and 5 |
| Removal of existing garden structure within RPAs | 4 and 5 |
| Installation of new garden room in RPAs | 3, 4 and 5 |
| Installation of new services and/or upgrading of existing services in RPAs | 3, 4 and 5 |
| Associated soft landscaping works | 3, 4 and 5 |

**Note:** The detailed analysis explaining how these trees will be protected is provided in Section 2 of this report. The approximate locations of the protective measures are shown on the tree protection plan. It is likely that some details of the tree protection will need to be refined in response to a planning condition, once consent is issued.

## 5. Overall assessment of how the development proposal will affect local character from a tree perspective

No trees will be lost because of this proposal and the appearance of the property and garden areas from surrounding public vantages will remain broadly unchanged. The construction activity may affect the existing trees if appropriate protective measures are not taken. However, if adequate precautions to protect these trees are specified and implemented through the arboricultural method statement included in this report, then the development proposal will have no adverse impact on the contribution that these trees deliver to the character of the wider setting

# Section 1
# Arboricultural assessment

This arboricultural assessment has taken account of all the recommendations set out in 5.4 of BS 5837 (reproduced courtesy of BSI below).

## 5.4 Arboricultural impact assessment

**5.4.1** The project arboriculturist should use the information detailed in **5.2** and **5.3** to prepare an arboricultural impact assessment that evaluates the direct and indirect effects of the proposed design and where necessary recommends mitigation.

**5.4.2** The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil.

*NOTE Scaled cross-sections and other drawings might be required to demonstrate the feasibility of the proposals (see Annex B).*

**5.4.3** As well as an evaluation of the extent of the impact on existing trees, the arboricultural impact assessment should include:

a) the tree survey (see **4.4**);

b) trees selected for retention, clearly identified (e.g. by number) and marked on a plan with a continuous outline;

c) trees to be removed, also clearly identified (e.g. by number) and marked on a plan with a dashed outline or similar;

d) trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or listed as appropriate;

e) areas designated for structural landscaping that need to be protected from construction operations in order to prevent the soil structure being damaged;

f) evaluation of impact of proposed tree losses;

g) evaluation of tree constraints (see **5.2**) and draft tree protection plan (see **5.5**);

h) issues to be addressed by an arboricultural method statement (see **6.1**), where necessary in conjunction with input from other specialists.

# Section 1: Arboricultural assessment

## 6. Relevant background information that has influenced this assessment – strategic and policy considerations

The Climate Change Act (2008) sets out a statutory strategic need to adapt to climate change at a national and local level, which is reiterated through the emphasis on sustainability in the National Planning Policy Framework. It is now widely accepted that trees offer significant climate adaptation benefits to the built environment where people live and work. These benefits include, amongst others, the buffering of temperature extremes and the buffering of rainwater runoff, which can significantly reduce the adverse impacts of climate change.

Additionally, there is an increasing body of research providing reliable evidence that trees impart other significant health-related benefits to the people that live and work near them. These benefits include, amongst others, the potential to improve psychological wellbeing by reducing stress and anxiety through the relaxing nature of their presence. It seems that access to greenspace and trees makes people happier and encourages them to take more exercise, which has a direct and positive impact on physical health and wellbeing. On a subtler level, the ecological enhancement that can be achieved through appropriate tree management makes a positive contribution to environmental sustainability.

These concepts are explored and set into a built-environment context in the recent Trees and Design Action Group's publications *Trees in the Townscape: A Guide for Decision Makers* and *Trees in Hard Landscapes: A Guide for Delivery*. Furthermore, specific advice on planting new trees is provided in British Standard 8545 (2014) *Trees: from nursery to independence in the landscape – Recommendations*. We have given significant weight to the guidance set out in these documents, which is reflected in the analyses in this report.

In line with these references, we agree with and support the general principle that more and bigger trees will deliver more benefits from their presence. Although this must be applied with balance and intelligence, it nonetheless remains an important guiding principle in the planning process and it has been an influential consideration in our analysis on this site.

Specific to this site and the proposal at hand, the new garden room will enable the occupiers of the property to engage and utilise the garden irrespective of time of year, and therefore maximise their exposure to the potential benefits from accessing this green space.

## 7. Relevant background information that has influenced this assessment – future pressure to fell

If trees are retained or planted too close to occupied buildings and/or garden amenity space, it is sometimes claimed that they can cause excessive shade or anxiety, which interferes with the normal use of the property. In extreme cases, this can result in pressure from future owners to fell or severely prune, thus reducing the long-term contribution of the trees to local character. However, in our experience, these problems are extremely rare and there is very little evidence that such pressures ever result in any significant harm to the wider setting. Indeed, there is an increasing body of evidence that the benefits from trees close to occupied areas significantly outweigh any disadvantages caused by shade or anxiety. Furthermore, important trees can be protected using tree preservation orders, which come with an overarching presumption to retain protected trees unless the normal use of the property is harmed to a significant extent. To our knowledge, there is no published evidence to support that trees are being lost to the detriment of local character for these reasons. We have considered these concerns in our analysis for this site and our conclusions take full account of those important issues. In this case the setting of the garden room is deliberate in its proximity to retained trees as this will ensure that there is direct engagement with the green space and therefore again it is not expected that the establishment of this structure will result in a pressure to prematurely fell or reduce the canopies of retained trees.

## 8. Trees to be protected through the use of special precautions

All the retained trees will be protected from damage using appropriate barriers. Additionally, in the precautionary area shown on the tree protection plan with the yellow highlighting, special precautions relating to the management of existing surfacing (incorporation of ground protection measures), the erection of the proposed garden room, landscaping and services will be required. These precautions are explained in the arboricultural method statement in Section 2 of this report. If the precautions set out in this arboricultural method statement are implemented as described, then all trees can be successfully retained without any adverse impact on them or on visual amenity.

## 9. Summary of the impact on local character

No trees will be lost because of this proposal and the appearance of the property from surrounding public vantages will remain broadly unchanged. The construction activity may affect the existing trees if appropriate protective measures are not taken. However, if adequate precautions to protect these trees are specified and implemented through the arboricultural method statement included in this report, then the development proposal will have no adverse impact on the contribution that these trees deliver to the character of the wider setting.

# Section 2
# Arboricultural method statement

This arboricultural method statement has taken account of all the recommendations set out in 6.1 of BS 5837 (reproduced courtesy of BSI below).

## 6.1 Arboricultural method statement

**6.1.1** A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement, in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained.

**6.1.2** The arboricultural method statement should be appropriate to the proposals and might typically address some or all of the following, incorporating relevant information from other specialists as required:

a) removal of existing structures and hard surfacing;

b) installation of temporary ground protection (see **6.2.3**);

c) excavations and the requirements for specialized trenchless techniques (see **7.7.2**);

d) installation of new hard surfacing – materials, design constraints and implications for levels;

e) specialist foundations – installation techniques and effect on finished floor levels and overall height;

f) retaining structures to facilitate changes in ground levels;

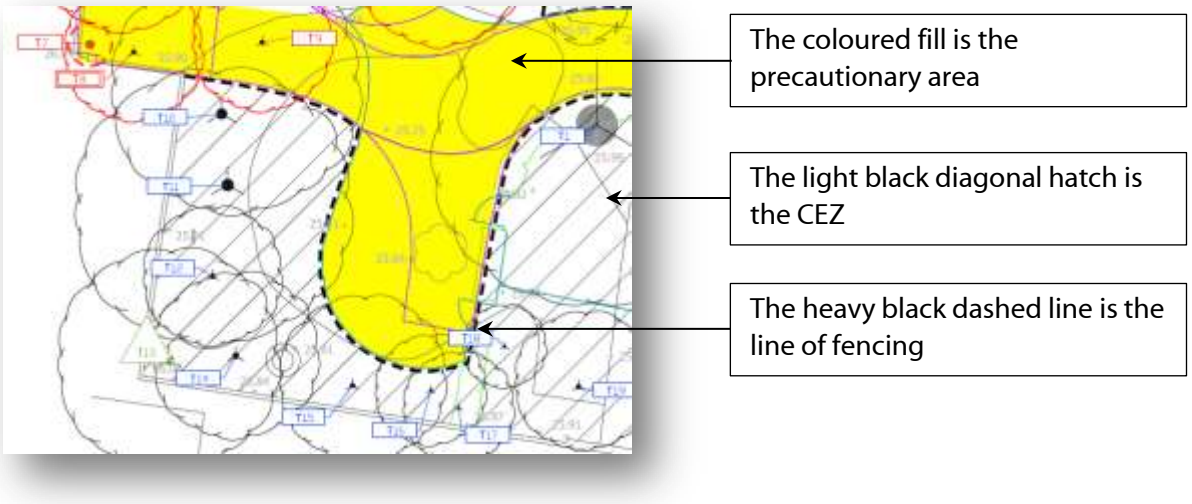
g) preparatory works for new landscaping ;

h) auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.

# Section 2: Arboricultural method statement

## 10. Identification of areas to be protected

The tree protection plan (typical annotation illustrated below) shows all the areas where protective measures are necessary. The construction exclusion zone ("CEZ") boundary is shown on the plan as the heavy dashed black line, with the lighter diagonal hatching behind. If necessary, further precautionary areas outside the CEZ are shown on the plan as a coloured fill, where a high level of care is required.




## 11. Construction method statement (heads of terms summary)

A construction method statement is a description of how operations that may affect trees will be carried out to minimise any adverse impact on them. The details of how the site will be managed are construction and contractual matters that can only be finalised once the post-consent detailed planning begins. For that reason, at this stage in the planning process, it is only possible to list a heads of terms summary of the issues that will require more detailed consideration once consent is issued. The issues that may require further clarification on this site include:

1. The order of work on site, including installation of barriers and ground protection.
2. Erection and maintenance of security hoarding near trees.
3. Who will be responsible for protecting the trees on site.
4. Detailed proposals for inspecting and supervising the tree protection, and how problems will be reported and solved.
5. How accidents and emergencies involving trees will be managed, including accidental damage to roots and their treatment.
6. The parking arrangements for workers and visitors.
7. A schedule of emergency contact numbers.
8. Areas for loading and unloading of materials and storage of materials and plant.
9. Where site facilities will be located and when will they be installed.
10. How machinery and equipment will enter, move on, work on and leave the site.
11. Recycling and storage of waste near trees.
12. Precise services locations, including the method of excavation when near trees.
13. Proposed locations of site facilities/material storage etc.

**Note:** It is not our role as arboricultural consultants to detail the timing and implementation of these measures, although we can input into the process and will need to confirm that the final proposals will not adversely affect retained trees.

## 12. Arboricultural supervision

An arboricultural consultant should be appointed by the developer to advise on the tree management for the site and to attend:

- a pre-commencement meeting before any work starts;
- regular supervision visits to oversee the agreed tree protection; and
- further supervision visits as necessary to oversee any unexpected works that could affect trees.

More specifically, the form and purpose of the supervision should be as follows:

- **Pre-commencement meeting:** A pre-commencement meeting should be held on site before any of the site clearance and construction work begins. This would normally be attended by the site manager, the arboricultural consultant and a local planning authority ("LPA") representative. In the event that a LPA representative declines to be present, the arboricultural consultant should inform the LPA in writing of the details of the meeting. All tree protection measures detailed in this document should be fully discussed so that all aspects of their implementation and sequencing are understood by all the parties. This should include agreeing the form and location of the most appropriate combination of fencing and/or ground protection to be used as barriers for the CEZ. Any agreed clarifications or modifications to the consented details will be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection should be agreed and finalised, which should then form the basis of any supervision arrangements between the arboricultural consultant and the developer.

- **General site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents should be available on site and the site manager should brief all personnel who could have an impact on trees on the specific tree protection requirements. This should be a part of the site induction procedures and written into appropriate site management documents.

- **Ongoing supervision of operations that could affect trees:** Once the site is active, the arboricultural consultant should visit at an interval agreed at the pre-commencement site meeting. This would normally be every two to four weeks for general supervision, but could be at a longer interval if agreed between the parties. The supervision arrangement should be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with the developer and the LPA to ensure that protective measures are fit for purpose and in place before any works start on site. Once the site is working, that role should switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

## 13. Summary of the tree issues to be project managed by the supervising arboriculturist

In overview, it is anticipated that arboricultural input is likely to be needed for the following operations:

1. Pre-commencement meeting
2. Preliminary tree felling and pruning
3. Installation of CEZ barriers (fencing)
4. Installation of ground protection
5. Pollution control near retained trees
6. Removal of existing garden structure/shed
7. Installation new garden room
8. Installation of new services and/or upgrading of existing services in RPAs
9. Soft landscaping works

# Section 2: Arboricultural method statement

## 14. Table 5: Suggested programme of arboricultural supervision during the development process

| Finalising tree management details after consent, but before work starts | |
|---|---|
| **Action** | **Arboricultural input** |
| Review of tree protection and any emerging design issues that may affect trees with the construction team | • Meeting/discussion with relevant members of the developer's team to explain the extent of the tree constraints<br>• Review working space requirements to consider barrier and ground protection adjustments to improve site functionality<br>• Review any post-consent layout changes that may affect trees<br>• Review all works within RPAs that may affect trees<br>• Identify any potential conflicts and work towards resolutions<br>• Preparation of working drawings, if necessary |
| Review consented tree protection proposals for discussion at pre-commencement meeting | If necessary:<br>• prepare revised plans and specifications<br>• liaise with LPA to discuss modifications |
| Briefing landscape architect on restrictions imposed on new landscape design by RPAs | • Advise landscape architect of the RPA locations, the restrictions to landscaping activity that applies and the details of agreed new tree planting<br>• Review the final landscaping proposals to identify any conflicts between tree protection and landscaping |
| Pre-commencement site meeting with supervising arboriculturist, site manager and the LPA representative (if appropriate) | • Meeting on site<br>• Agree detail of supervision requirements, i.e. frequency of visits and reporting<br>• Review any updated proposals<br>• Review tree protection, if already installed |

| Site operations before work starts on site | |
|---|---|
| **Action** | **Arboricultural input** |
| Tree works carried out | • Review the site requirements with the tree work contractor |
| Installation of tree protection for agreement by the LPA | • If appropriate, preparation of any revised plans and specifications for agreement by the LPA<br>• Photographs showing relevant aspect of installed tree protective measures<br>• Liaise with the contractor installing protection until satisfactorily completed |
| Site preparation and dismantling of existing garden structure/shed | • Liaise with the demolition contractor about tree protection |

| Operations that could affect trees during construction | |
|---|---|
| **Action** | **Arboricultural input** |
| Installation of new garden room | • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant |
| Installation of new services or upgrading of existing | • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant |
| Removal of barriers and ground protection | • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant<br>• **NOTE:** This should only be authorised once there is no risk of RPA damage from the construction activity |

| Operations that could affect trees after construction is completed | |
|---|---|
| **Action** | **Arboricultural input** |
| Soft and hard landscaping | • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant |

The precise order and timing of some of these operations may change due to site operating requirements, but all operations that could affect trees should remain under arboricultural supervision.

## 15. Tree works

In most situations, the tree works need to be carried out before the construction activity starts. Tree works, based on our assessment of the proposal and the original site inspection, are set out in the work recommendations column of the tree schedule in Appendix 2. The location of each tree by number is shown on the tree protection plan. All tree works must be reassessed before any site activity starts as part of the standard risk management process.

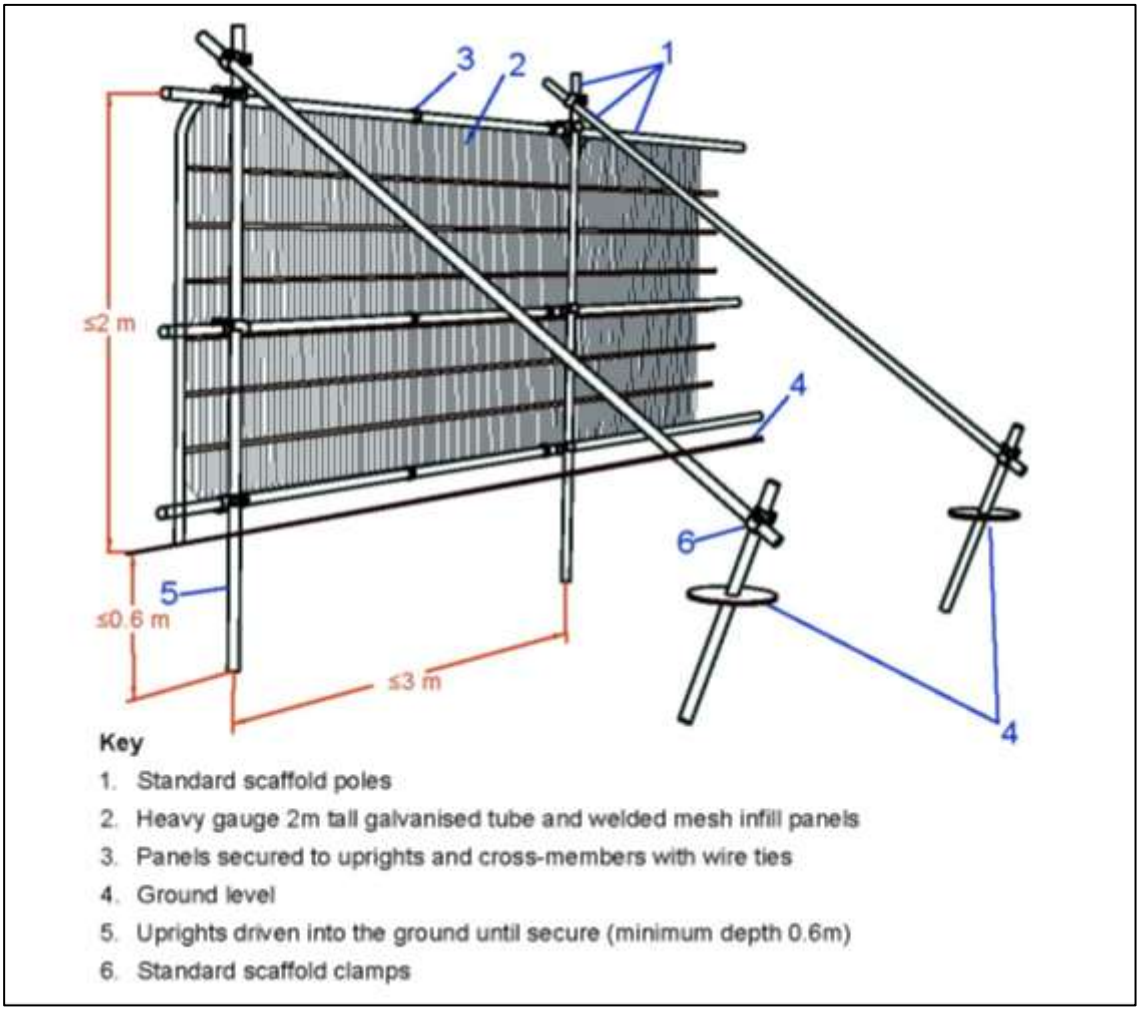
## 16. Primary tree protection using fencing

The CEZ is the RPA surrounding retained trees that must be protected from any disturbance by the construction activity. In practice, this can be done by any combination of fencing and ground protection, to be finalised and agreed at the pre-commencement meeting. Whether the CEZ is protected by fencing or ground protection, all the protective measures should be installed before the start of any site works that could affect trees. No protective measures should be removed or temporarily dismantled without consulting the supervising arboriculturist. Furthermore, the condition of all the protective measures should be regularly monitored to ensure they remain fit for purpose. The main means of preventing damage to trees and their RPAs in the CEZ are fencing, barriers and ground protection.

Protective fencing should be installed at the locations shown on the tree protection plan by the heavy black dashed line. If agreed with the LPA, fencing can be set back to improve access, provided the exposed ground is protected with ground protection. Various fencing options are illustrated in Fencing images 1–5. The minimum specification for the fencing should be as described in figure 2 of BS 5837 (Fencing image 1) or an equivalent design that effectively restricts access to the RPA it protects.

The precise form of the fencing can vary, provided it is fit for purpose in that it effectively restricts access and damaging activities within the RPA that it encloses. More specifically, behind the fencing, there should be no vehicular access; no fires; no storage of excavated debris, building materials or fuels; no mixing of cement; no service installation or excavation; no raising or lowering of soil levels; and no excessive cultivation for landscape planting. Any variations to these restrictions should be agreed by the supervising arboriculturist.

## Section 2: Arboricultural method statement




**Fencing image 1:** Recommendations taken from figure 2 of BS 5837.

**Fencing image 2:** Heras fencing wired to scaffold braced posts is a robust and effective interpretation of the BS specification.

**Fencing image 3:** Close up of bracing detail, essential for increasing the stability of the vertical framework.

Where individual trunks or branches are vulnerable to impact damage, a framework of scaffold or wood can be constructed to provide protection (Fencing images 4 and 5).

**Fencing image 4:** A scaffold-braced framework surrounding the trunk reduces the risk of accidental impact.

**Fencing image 5:** Board secured to scaffold framework adds another layer of protection for vulnerable trunks and branches

## 17. Primary tree protection using ground protection

Where it is not practical to protect the CEZ by the use of fencing alone, BS 5837 (6.2.3) allows for the fencing to be set back and the soil protected by ground protection. This allows improved access during construction, with the ground protection preventing damage to the CEZ outside the protection of the fencing. A range of methods can be used, including retaining existing hard surfacing or structures that already protect the soil, installing new materials, or a combination of both. Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots. Ground protection images 1–8 illustrate a range of practical surface coverings that can effectively protect CEZs of retained trees.

**Ground protection image 1:** Heavy-duty plywood set onto a compressible woodchip layer and pinned into position is suitable to spread the loading from pedestrian access.

**Ground protection image 2:** Spreading soil excavated from footings is an effective way of buffering the plywood surface from the wear of light vehicles.

**Ground protection image 3:** Plywood fixed to a wood frame is another effective method of protecting soil from pedestrian compaction.

**Ground protection image 4:** A scaffold framework attached to the main scaffold fencing can be used to support either scaffold planks or plywood to create an elevated platform with a gap beneath.

**Ground protection image 5:** Cellular products are a very effective means of providing ground protection where heavy vehicle use is expected. Here, it is being used to temporarily widen an existing road, to be removed once the construction is finished.

**Ground protection image 6:** Custom designed sectional tracks can be joined to support very heavy traffic use through sensitive areas.

**Ground protection image 7:** A combination of retaining existing surfacing and using temporary construction cabin accommodation can be a very effective means of preventing damage to sensitive areas.

**Ground protection image 8:** Steel plates can be an effective way of temporarily reinforcing weak surfacing over a construction access during the development activity.

On this site, all the precautionary areas annotated with yellow shading on the tree protection plan should be protected with ground protection while vulnerable to damage, in line with the above examples. Where appropriate, any existing hard surfacing can be retained and utilised. Any surfacing to be retained that is disrupted during the course of the construction activity can be replaced, reconditioned or upgraded as necessary. This work should be subject to arboricultural supervision.

## 18. Extra precautions – pollution control near retained trees

The following guidance should be applied wherever risk assessment identifies a significant risk of chemical pollution.

Spilt chemicals that can soak into RPAs will kill existing roots and may prevent new roots growing, so provision must be made to minimise the risk of contamination to soil within the normal risk management protocols for the site. This would normally include means of containing spillages and procedures for clearing them up if they occur (Pollution image 1). All cement mixing and vehicle washing points must be located outside RPAs, with provision to contain any spillages. Where the contours of the site create a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of bunding or a frame, sealed with heavy-duty plastic sheeting sufficient to prevent contamination (Pollution image 2), must be used to contain accidental spillages.

**Pollution image 1:** Where fuel or other chemicals are stored on site, it is now standard practice to have emergency spillage kits available to restrict the environmental impact of accidents.

**Pollution image 2:** Soil bunding or a supporting framework covered in heavy-duty plastic sheeting is essential where there is a risk of spillages contaminating RPAs. This specifically applies to cement mixing areas and vehicle washing facilities.

## 19. Extra precautions – excavation in RPAs

The following guidance applies to trees, which are shown on the tree protection plan.

Precautionary areas are RPAs outside the fencing, i.e. they are areas where construction activity can take place, but it must be carried out with care to avoid damaging the sensitive rooting environment. BS 5837 (7.2) makes provision for excavating in RPAs, explaining that all excavation must be carried out carefully using hand-held tools and preferably by compressed air soil displacement, taking care not to damage the bark and wood of any roots (Excavation images 1–4).

All soil removal must be done with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of smaller fibrous roots should be retained if they can be displaced temporarily or permanently beyond the excavation without damage. If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots to be removed should be cut cleanly with a sharp saw or secateurs 10–20cm behind the final face of the excavation. Roots temporarily exposed must be protected from direct sunlight, drying out and extremes of temperature by appropriate covering such as dampened hessian sacking (Excavation image 4). If necessary, roots less than 2.5cm in diameter can be cut cleanly without consultation with the supervising arboriculturist. Roots greater than 2.5cm in diameter should be retained where possible and only cut after consultation with the supervising arboriculturist.

**Excavation image 1:** Careful hand-digging using conventional tools is acceptable for exposing roots in RPAs.

**Excavation image 2:** Air spades are very effective at exposing roots and services with minimal damage.

**Excavation image 3:** Air spades are particularly useful where roots are very dense.

**Excavation image 4:** Exposed roots must be protected from light, drying out and extremes of temperature by covering with hessian sacking and boards until they can be covered back with soil.

## 20. Extra precautions – installation of new structure in RPAs

The new garden room is located within the calculated root protection areas of trees 3, 4 and 5 and as such has been designed to be suspended above the ground on adjustable bearing shoes, which are located on pads approximately 2 metres apart. This ensures that there is no need for conventional foundations or load spreading base that would otherwise present a risk of adverse impact on the soil profile and therein rooting conditions. These works will be subject to appropriate arboricultural supervision as to be agreed at the precommencement meeting.

## 21. Extra precautions – installation of new services and/or upgrading of existing services in RPAs

The following guidance will be applied to all trees at the site shown on the tree protection plan.

Excavation to upgrade existing services or install new services in RPAs may damage retained trees. Where possible, all services should be outside RPAs and installation in RPAs should only be chosen as a last resort. If installation within RPAs is being considered, as advised in 4.1.3 of the NJUG guidance, the decision should be made in consultation with the LPA or the supervising arboriculturist before any work is carried out. If service installation is agreed within RPAs, the NJUG protocol as set out in 4.1.3 of its guidance should be used to decide the most appropriate method. In summary, this sets out that "*Acceptable techniques in order of preference are; a) trenchless, … b) Broken trench – hand-dug … c) Continuous trench – hand-dug*". If trenchless methods are to be used, there is normally a starting pit and a finishing pit that have to be dug at each end of the service run and these must be outside RPAs. Where a hand-digging option is agreed, any roots discovered during the excavations should be dealt with as explained above. Where possible, backfilled material around excavated services must not be heavily compacted, with specific advice provided in 4.1.5 of the NJUG guidance.

## 22. Extra precautions – upgrading existing soft landscaping

This guidance should be applied wherever new landscaping is installed near retained trees.

For the purposes of this guidance, soft landscaping includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of new structures or compacted surfacing, which are considered as substantial works and covered in the preceding sections of this document.

Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within RPAs. Where new designs require levels to be increased to tie in with new structures or the removal of an existing structure has left a void below the surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place, but not over compacted, in preparation for turfing or careful shrub planting. Ideally, all areas within 1m of tree trunks should be kept at

the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage (Landscaping images 1 and 2).

**Landscaping image 1:** The RPA of this tree was not effectively protected during construction and excessive compaction of the soil meant it died soon after this turf covered up the damage.

**Landscaping image 2:** This tree had tarmac parking within its RPA that was removed and replaced with an organic mulch near the trunk and limited no-dig surfacing on the outer edges of its RPA.

## 23. Removal of protection

All protective barriers must remain in place until the construction activity is finished and there is no realistic risk of damage to the protected soil surfaces.

## 24. Table 4: Contact details for parties involved in the development

| Project partner | Contact details |
|---|---|
| Developer/Project manager | Not yet confirmed |
| Project architect | Hugh Cullum Architects Ltd; 0207 3837647 |
| Project arboriculturist | Barrell Tree Consultancy; 01425 651470; info@barrelltreecare.co.uk |
| LPA tree officer | Not yet confirmed |
| LPA planning officer | Not yet confirmed |

# Section 3
# Appendices

# Appendix 1: Background administrative information, data collection and any additional relevant information

## 25. Table 5: Background administrative information

| | Background administrative information |
|---|---|
| **Report date & reference** | 06/01/2017 – 16387-AA-PB |
| **Tree protection plan reference** | BT2 |
| **Our instructing client** | Gabriel Altschuler |
| **Our instructions** | Visit the site, assess the relevant trees, prepare a schedule of their details, describe the impact of the proposal on those trees and identify the tree protection issues in an arboricultural method statement confined to the heads of terms |
| **Provided documents** | Drawing reference 'PR002 –E002(_) – Site Plan with Outline.pdf', received by email on 15 December 2016<br>Drawing reference 'PR002 –P002 Proposed site Plan.pdf', received by email on 3 January 2017<br>Drawing reference 'PR002 –P025(_) – Proposed garden building Plan ELvs Sects.pdf', received by email on 3 January 2017<br>NB – ALL PLANS CONVERTED PDFs |
| **Report author and credentials** | Phil Brophy and fully qualified to undertake the assessments in this report. Further details of his credentials can be found at www.barrelltreecare.co.uk/career-summaries/Phil |
| **Report limitations** | We have not checked if the trees are protected. If any tree works are proposed before a planning consent is given, then the existence of any statutory protection must be checked with the LPA. This report does not consider ecological or archaeological issues, or any other matter beyond the assessment of the trees. |
| **Technical references** | In preparing the analysis in this report, detailed consideration was given to the guidance and advice in the following technical references:<br>• Climate Change Act (2008) www.legislation.gov.uk/ukpga/2008/27/contents<br>• Town and Country Planning Act 1990 http://www.legislation.gov.uk/ukpga/1990/8/contents<br>• National Planning Policy Framework ("NPPF"), published by the DCLG www.gov.uk/government/publications/national-planning-policy-framework--2<br>• BS 5837 (2012) *Trees in relation to design, demolition and construction – Recommendations*, BSI http://shop.bsigroup.com/<br>• BS 3998 (2010) *Tree work – Recommendations*, BSI http://shop.bsigroup.com/<br>• *Trees in the Townscape: A Guide for Decision Makers*, published by the Trees & Design Action Group http://www.tdag.org.uk/<br>• *Trees in Hard Landscapes: A Guide for Delivery*, published by the Trees & Design Action Group http://www.tdag.org.uk/<br>• National Joint Utilities Group (2007) Volume 4, Issue 2: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees* www.njug.org.uk/publications/ |

## 26. Table 6: Data collection

| | Data collection |
|---|---|
| **Date of site visit** | 20/12/2016 |
| **People present during site visit** | Phillip Brophy |
| **Weather & visibility** | Dull, and dry, with average visibility |
| **Limitations to observations** | • Our inspection of the trees for the purposes of assessing their condition and work requirements is made on the basis that they will be annually |

# Appendix 1: Background administrative information, data collection and any additional relevant information

| | Data collection |
|---|---|
| | inspected in the future to identify any changes in condition and review the original recommendations. For these reasons, the tree assessment advice only remains valid for one year from the date that the trees were last inspected.<br>• All observations were of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level.<br>• Observations of trees 3, 4 and 5 were confined to what was visible from public vantages due to the restriction on site access.<br>• All dimensions were estimated unless otherwise indicated. |
| **Tree location and numbering** | Each tree was inspected and the numbering scheme is indicated on the tree protection plan. If appropriate, obvious groups were identified and numbered. If important trees were found on site that were not included on the provided plan, their approximate positions and canopy extents are indicated on the plan. |
| **Recording of tree data** | For each tree and any group found on site, the information collected was recorded on the tree schedule in Appendix 2 and the tree protection plan. |
| **Compliance of data collection with BS 5837** | The data collection is fully compliant with the advice in subsection 4.4.2 of BS 5837. When collecting this information, specific consideration was given to any low branches that may influence future use, age class, physiological condition, structural condition and remaining contribution. Where appropriate, crown spreads were also noted where they differed from those shown on the provided land survey. |
| **Calculation of RPAs** | Following the recommendations in Table D1 of BS 5837, the diameter of each tree was rounded up to the next 2.5cm increment, with the radius of a nominal circle and the resultant RPA taken directly from that table. This information is listed for each tree in the tree schedule in Appendix 2. |

## Appendix 2: Tree schedule and explanatory notes

**NOTE:** Colour annotation is B trees with green background; C trees with blue background.

| Tree No | Species | Height (m) | Diameter (cm) @ 1.5m | Maturity | Low Branches | Category | Notes | Tree Works | RPA radius (m) | RPA area (m2) |
|---|---|---|---|---|---|---|---|---|---|---|
| All trees | | | | | | | | Carry out safety check and lift over site to 3-4m as necessary. | | |
| T1 | Cherry | 5 | 22.5 | Mature | - | C | Established ornamental feature in keeping with character of the street scene. Evidence of past pruning for footpath and garden clearance. | - | See Tree Protection Plan BT2 | See Tree Protection Plan BT2 |
| G2 | Elder | 6 | 15 | Maturing | - | C | Located at lower level than adjacent gardens | - | See Tree Protection Plan BT2 | See Tree Protection Plan BT2 |
| T3 | Birch | 11 | 32.5 | Maturing | - | B | Marginal category B tree, ornamental garden feature that is twin stemmed from ground level, evidence of past canopy reduction (approximately at 9m above ground level) and regrowth from this point | - | 3.9 | 48 |
| T4 | Cypress | 11 | 37.5 | Maturing | - | C | Screen element to rear garden, evidence of past canopy reduction | - | See Tree Protection Plan BT2 | See Tree Protection Plan BT2 |
| T5 | Cypress | 11 | 37.5 | Maturing | - | C | Screen element to rear garden, evidence of past canopy reduction | - | See Tree Protection Plan BT2 | See Tree Protection Plan BT2 |

# Appendix 2: Tree schedule and explanatory notes

## Explanatory Notes

- **Abbreviations:**

G : Group
RPA : Root protection area

- **Botanical tree names:**

| | |
|---|---|
| Birch | : *Betula pendula* |
| Cherry | : *Prunus* sp |
| Cypress | : *Cupressus* sp |
| Elder | : *Sambucus nigra* |

- **BS 5837 (2012) compliance:** All data has been collected based on the recommendations set out in subsection 4.4 of BS 5837.
- **Tree inspections and site limitations:** Each tree was subjected to a quick visual check level of inspection. Where there is restricted access to the base of a tree, its attributes are assessed from the nearest point of access. Climbing inspections are not carried out during this level of inspection and, if heavy ivy is present, tree condition is assessed from what can be seen from the ground. A separate note is recorded if further investigation may be required to clarify its status.
- **Crown spreads:** Crown spread dimensions are not listed in the tree schedule because they are illustrated on the land survey base to all the plans in this document. Where crown spreads of significant trees on site are found to deviate from those shown on the provided land survey, we have noted it in the text of the report and annotated it on our plans.
- **Dimensions:** All dimensions are estimated unless annotated with a '*'.
- **Species:** Species identification is based on visual observations. Where there is some doubt over tree identity, sp is noted after the genus name to indicate that the species cannot be reliably identified at the time of the survey. Where there is more than one species in a group, only the most frequent are noted and not all the species present may be listed.
- **Height:** Height is estimated to provide a broad indication of the size of the tree.
- **Trunk diameter:** Trunk diameter is estimated or measured and recorded in 2.5cm increments as advised in BS 5837 Table D1. It is measured with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837.
- **Maturity:** In planning context, maturity provides a simplistic indication of a tree's ability to cope with change and its potential for further growth. For the purposes of this report, young indicates a potential to significantly increase in size and a high ability to cope with change, maturing indicates some potential to increase in size and a medium ability to cope with change, and mature indicates little potential to increase in size and limited ability to cope with change.
- **Low branches:** Any low branches that would not be feasible for removal during normal management and should be considered as a design constraint are noted here and explained in the notes.
- **Category:** Our assessment automatically considered tree physiological/structural condition (BS 5837, 4.4.2.5h), and so these are not listed separately in the schedule. Additionally, the category accounts for the remaining contribution (BS 5837, 4.4.2.5i) as greater than 20 years for B trees, at least 10 years for C trees, so this is also not listed separately in the schedule. Category B and C trees are automatically listed as sub-category 1 unless otherwise stated.

## Appendix 2: Tree schedule and explanatory notes

- **Notes:** Only relevant features relating to physiological or structural condition and low branches that may help clarify the categorisation are recorded. If there are no notes, then the presumption should be that no relevant features were observed.
- **Tree works:** The recommended tree works are based on the quick visual check level of inspection and only intended to address significant hazards identified during that inspection.
- **Future tree safety inspections:** Due to the time that may elapse between the original survey and the start of development, all trees should be re-inspected as part of the standard risk management process before any works start on site. Our assessment of the trees was carried out on the basis that a re-inspection would be carried out within a year of the assessment visit and our advice on tree condition must be reviewed annually from the date of that visit.

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