

Arboricultural Assessment & Method Statement

for proposed development at

12 Burgh Heath Road, Epsom, KT17 4LJ

On Behalf of: **Mr & Mrs Roberts**

Reference: **MW.22.0315.AIA**

Date Issued: **19 July 2022**



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Executive Summary

Trees are a consideration in this planning application. Therefore, this report has been drafted to provide the information required to enable the local planning authority to meet the duty placed upon them by section 197 of the Town and Country Planning Act (as amended, 2021).

Included are a BS5837:2012 compliant tree survey, arboricultural impact assessment, and a tree protection strategy including a method statement and protection plan.

Two small, low-quality trees are to be removed to facilitate the proposals.

There are two elements of new construction within the RPAs of retained trees. To minimise impact, a no-dig style approach is to be used. The floors will be located above existing levels using a pile and beam foundation.

Patios are also proposed within the RPAs. These will be built as decking type structures, founded upon posts in hand excavated holes.

Ground protection will be used to allow construction access to the rear of the site.

Tree protection commitments include installing barriers and ground protection; a pre-start audit/meeting; regular monitoring visits; supervision of certain tasks.



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1. Instructions and Terms of Reference

- 1.1. In April 2022, I was instructed by Whiteman Architects on behalf of Mr & Mrs Roberts to undertake a tree survey and subsequently, in July to produce this report to accompany a planning application for extension and conversion of the current dwelling at 12 Burgh Heath Road, Epsom, KT17 4LJ.
- 1.2. Following the recommendations of the British Standard¹, this report includes the necessary information to enable the local planning authority to meet the duty placed upon them by section 197 of the Town and Country Planning Act (as amended, 2021).
- 1.3. It demonstrates that the impact, both direct and indirect, of the proposal, has been assessed and where appropriate, mitigation, compensation and tree protection proposed.
- 1.4. Correct implementation of the tree protection specified within this report is critical for ensuring the retained trees are successfully protected throughout the construction process.
- 1.5. The assessment considers the impact of the proposal on the constraint presented by trees retained within the site, and those on adjacent land. Such impact can be caused directly through construction damage and indirectly from post-development resentment and pressure to detrimentally prune or remove the trees. The latter is often due to a poor juxtaposition between the proposal and the trees.
- 1.6. The root protection area (RPA) for each tree represents a minimum area in m² that should be left undisturbed around each retained tree. This is initially represented by a circle but is fundamentally an area of rooting volume. This is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). Recommendations are provided in the British Standard as to the protection of existing trees during the construction process. This is achieved by ensuring a tree protection strategy is implemented before any demolition or construction on site.

Documents Supplied

- Proposed: 17423_12 Burgh Heath Road_220708.dwg
- Site sections: 17423/E/051.pdf

Statutory Legislation

- 1.7. According to Epsom & Ewell Borough Council's online service², there are two tree preservation orders on present (checked at the time of writing):
 - TPO 46 from 1970
 - TPO 385 from 2007
- 1.8. They cover four trees and are noted on the tree protection plan.

¹BS5837:2012 Trees in relation to design, demolition and construction

² <https://maps.epsom-ewell.gov.uk/myeebc.aspx>

- 1.9. Applications for any work to the protected trees must be made, and consent granted before it is carried out.
- 1.10. The site is also within Burgh Heath Road Conservation Area.
- 1.11. Conservation areas require that the local planning authority (LPA) are provided with six weeks' notice of any intended tree work. This is called a Section 211 notice³. If the LPA deem the tree of sufficient value that the work be controlled or restricted, then they can include it within a tree preservation order (TPO). That is essentially a refusal and then a TPO application must be submitted for any work.
- 1.12. If the six week's passes without a response from the LPA, the work can be carried out.
- 1.13. Only trees with a stem diameter greater than 75mm at 1.5m above ground level require the submission of a s211 notice.

2. Tree Survey-Scope and Methodology

- 2.1. Tree survey data can be found on the appended plan.
- 2.2. The tree survey has been carried out following the recommendations of The British Standard and the trees are assessed objectively and without reference to any site layout proposals. Categories are based on each tree's health and condition, together with an assessment of its life expectancy if its surroundings were to be unchanged.
- 2.3. The reference numbers of surveyed trees and groups of trees are shown on the tree reference plan, which is appended to this report and based on the supplied survey drawing. Stem locations within groups may be estimated, and indicative of canopy only.
- 2.4. The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment⁴ (VTA) method.
- 2.5. Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- 2.6. Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- 2.7. Tree heights were measured with a clinometer or estimated in relation to those measured.
- 2.8. Trunk diameters are measured at 1.5m above ground level, where this is not possible, then Figure C.1 of the British Standard is followed.
- 2.9. Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for

³ <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

⁴ Mattheck, C. & Breloer, H., 1998. The Body Language of Trees: A Handbook for Failure Analysis. London: H.M.S.O.

each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).

2.10. All estimated dimensions are noted in the data.

3. Arboricultural Impact Assessment

Proposal

3.1. It is proposed to build a rear extension to the existing dwelling and to replace the current outbuildings. New areas of external surfacing are proposed around each new element. The layout and location of the proposed can be seen on the appended plan.

Tree Removals

3.2. Two trees will be removed to facilitate this proposal: a small plum and a laburnum. Both are of limited quality and wider value. Any loss that may be felt because of their removal can be mitigated through new planting within the site.

Tree Surgery

3.3. The only tree surgery currently proposed is the lifting of the frontage lime's lower branches to improve vehicular access.

Construction Impact

3.4. Replacement of the existing outbuildings with a new single structure: this will be carried out under close arboricultural supervision. The new foundations will be installed above ground on strategically placed mini-piles to minimise subterranean disturbance.

3.5. The same approach will be used for the foundations to the rear extension.

3.6. Sections showing existing and finished floor levels are appended to demonstrate that the levels are viable (sections taken from supplied plan ref: 17423/E/051 by Whiteman Architects).

3.7. The two new areas of external surfacing will be installed that minimises impact upon the underlying ground. For example, decking, or another style of raised platform.

3.8. Ground protection will be installed as shown on the appended tree protection plan to provide for construction access to the rear of the site.

3.9. In an environment such as this where built form occurs, the actual root spread of trees is un-mappable. Given the constrain posed by the existing outbuilding, it is probable that roots beneath it are limited and that broadly following the existing footprint is a reasonable approach to minimising impact. There can be no doubt that the existing structure is tired and would welcome an upgrade. This approach to limiting excavation is entirely viable and acceptable.

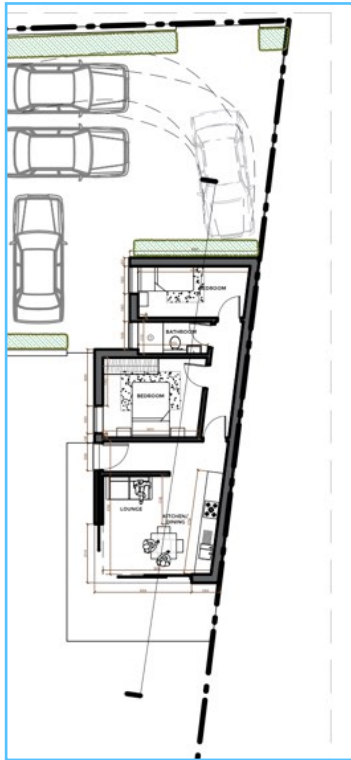


Image 1: Outbuilding section (see appendix 3)

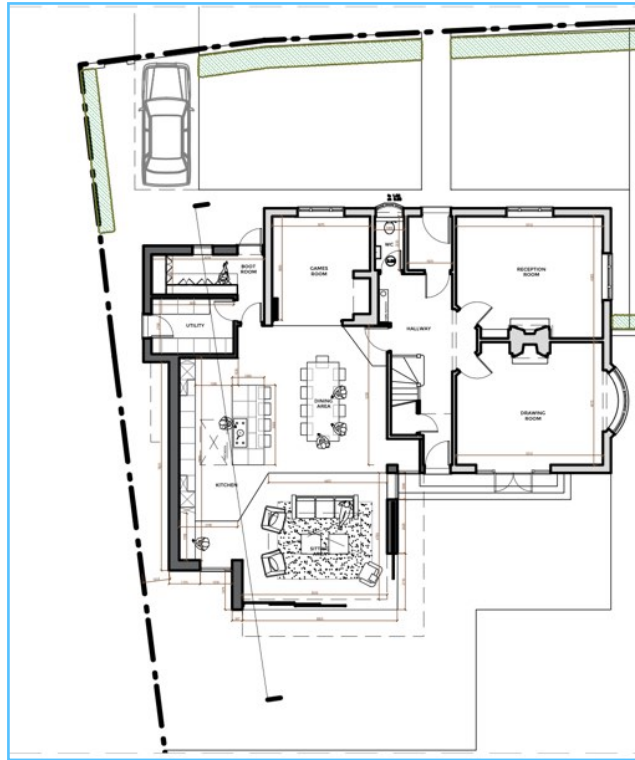


Image 2: Rear extension section line (see appendix 3)

3.10. With regard to the rear extension, the sections show the ground level dropping away from the rear of the house. This enables the same approach to be used: a raised floor supported on piles. When the predicted (off-set) RPA of the protected pine tree #10 (shown on the TPP) is reviewed, it can be seen that the encroachment is actually just over 27m². This equates to about 12% of the overall 222m² RPA. Some of this area is already external surfacing and so it is probable that the actual root presence is even less than estimated. Nonetheless, the proposed solution is capable of avoiding any large roots that may be found, and thus, in my opinion, will not result in significant detriment to the pine provided it is correctly implemented.

Supervision & Monitoring

3.11. Some sites require more arboricultural involvement during the construction process than others. This is typically commensurate with the pressure on retained trees and the complexity of the tree protection strategy.

3.12. For this project, a pre-start meeting/tree protection audit before demolition starts is proposed. Regular monitoring visits are recommended. Supervision will also be required for two separate tasks.

Service & Utility Provisions

3.13. It is presumed that existing service and utility feeds will be reused for this project. However, should any new connections be required, the appropriate section of the method statement will be followed to minimise impact upon any routes where the work is within RPAs.

4. Arboricultural Method Statement (AMS)

- 4.1. The tree protection on this site is subject to implementation as detailed in the following sections.
- 4.2. The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, impact on any retained trees is minimised through a combination of supervision from an arboriculturist and adherence to the associated method statement.
- 4.3. It is imperative that the strategy is followed to avoid not only impact upon the trees, but to adhere to any planning conditions, once permission is granted.
- 4.4. The information within this section must be passed to the site foreman and cascaded to all relevant personnel involved in the project.
- 4.5. Any questions about the content or its implementation should be directed to **Mark Welby on 01730 239492**, before action is taken.
- 4.6. A tree protection plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features and the approved construction. The plan must be read in conjunction with this method statement.

Phasing

- 4.7. It is essential that the following phasing is followed if trees are to be effectively protected throughout construction.



1	Tree removals/surgery
2	Installation of protection barriers & ground protection
3	Pre-start tree protection audit/meeting <u>Commence regular site monitoring visits (see below)</u>
4	Demolition of outbuilding (slab retained as ground protection for now))
5	Mini piling rig access to rear extension area
6	No-dig rear extension constructed
7	No-dig outbuilding constructed
8	Patio areas constructed

9 Removal of barriers after all external construction work has been completed

Table 1: Timing of Operations

4.9. The above has been drafted at planning stage. Should any of the protection measures prove incompatible with elements of the build program, please contact the project arboriculturist to discuss options.

Pre-Start Audit/Meeting

4.10. Probably the most important step in the tree protection process. A meeting with the project arboriculturist and the site manager should be undertaken to review the measures before any main construction work starts on site. Usually included as a specific item in any planning conditions.

4.11. It is an opportunity to discuss any conflicts with the approved AMS and to seek changes if necessary.

4.12. An auditable record is to be kept on file and forwarded to the LPA if required.

Site Monitoring

4.13. The tree protection measures will be inspected on a cyclical basis throughout all external construction work. This will entail an arboriculturist attending site, checking the protection measures and reporting findings to the local planning authority (LPA).

4.14. If a default is noted and considered incidental, corrections are to be immediately implemented. If the default had potential to impact tree(s) or the RPA, then remedial measures will be outlined and permission for the work obtained from the LPA.

4.15. An example of an incidental default would be a missing fence panel. A significant default would be trenching within a CEZ.

4.16. It is proposed to commence monitoring one month after the pre-start meeting. This is to be repeated on an approximate monthly basis, at least for the main construction works. If it is considered that external pressure on the protection measures is becoming reduced as external works reduce, a lesser frequency of visits may be acceptable (subject to LPA approval).

Construction Exclusion Zone (CEZ)

4.17. The CEZ is a root sensitive area where construction activities are to be excluded. The default method of doing so is through the installation of tree protection barriers. If construction access is required in the CEZ then ground protection can be used to facilitate this.

4.18. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

4.19. Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever;

- No excavation by any other means without arboricultural site supervision;
- No hand digging without a written method statement having first been approved by the project arboriculturist;
- No lowering of levels for any purpose (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemical including cement washings;
- No vehicular access (unless ground protection is installed);
- No fire lighting.

4.15. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

4.16. Variation from the above may be specified in the following sections of this method statement. This is only acceptable where detailed and will typically be subject to supervision by the arboriculturist.

Protection Barriers

4.17. Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

4.18. See [Appendix i](#) for barrier specifications.

4.19. The default specification comprises a vertical and horizontal scaffold framework, well braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

4.20. On smaller projects or those where the level of construction is less intensive, alternative specifications may be acceptable (see [Appendix i](#)), subject to agreement with the project arboriculturist and written approval LPA (local planning authority).

Ground Protection

4.21. If required to facilitate access within the CEZ (or as shown on the appended tree protection plan), ground protection is to be installed. If not already included on the tree protection plan, it must be approved in

writing by the local planning authority before implementation. The ground protection must be capable of supporting the expected loads and avoiding rutting, compaction and damage to the soil: as advised in section 6.2.3 of the British Standard.



*Tree protection barriers and scaffold
ground protection*



Tree protection barriers & trackmat ground protection

4.22. Stages of ground protection installation:

1. If required, dismantle barriers and re-erect them to protect any newly exposed CEZ not to be covered by ground protection;
2. Any shrubs, saplings or trees to be removed, are to be cut or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees;
3. Lay woven geotextile over existing ground surface by hand;
4. Cover the area with compressible layer (200mm of woodchip, for example), using hand tools only;
5. Cover compressible layer with side butting scaffold boards, plywood boards of proprietary trackway/ trackmats;
6. Confirm surface is acceptable for use with project arboriculturist;
7. Area ready for construction access;
8. Any scaffolding required within the area will be erected with the uprights placed on spreader boards;
9. The boarding will be left in place until the construction works are finished.

4.22.A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground protection will involve the use of temporary geocell/cellular confinement systems, reinforced concrete slabs or track-board systems details of which are to be specified by the project engineer and approved for use by the project arboriculturist and local authority before construction commences.

4.23. Track-boards can be sourced from Trakmats Europe Ltd, 0845 6435388, [www. trakmatseurope.com](http://www.trakmatseurope.com), or groundguards.com

4.24. There is to be no excavation within ground protection area whatsoever. This includes installation of services and associated utilities, without prior approval.

Site Induction

4.25. All site staff are to be briefed on the tree protection strategy for the site as part of the general site induction procedure. This can be carried out by the site manager once he has been briefed by the project arboriculturist.

4.26. In general, this will include the following:

1. Explanation of the purpose of the tree protection barriers and any ground protection
2. Explanation of the demolition procedures near trees
3. Explanation of the sensitive/supervised excavation areas
4. What do do if access is needed within a protected area for any reason
5. What to do if damage occurs to any tree protection barriers and how to contact the project arboriculturist if necessary.

Tree Surgery

- 4.27. Tree surgery work is listed in the schedule on the appended plan, along with all trees to be removed.
- 4.28. All work will be carried out in accordance with BS3998⁵ industry best practice and in line with any works already agreed with the council.
- 4.29. The statutory protection^{6 7} will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.
- 4.30. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.
- 4.31. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

Installation of Underground Services

- 4.32. Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care must be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus must be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.
- 4.33. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing must be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used: Microtunnelling, Surface-launched directional drilling, Pipe ramming or Impact moling (see BS5837:2012 Table 3), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs. If this is case, the following methodology must be followed:

⁵ BS3998:2010- *Recommendations for Tree Work*. London: British Standards Institute

⁶ *Wildlife and Countryside Act*. (1981) London: HMSO.

⁷ *Conservation of Habitats and Species Regulations (2017)* London: HMSO.

4.34. Stages for installing services:

1. Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
2. Remove just enough tree protection fencing to allow access to area and facilitate trenching.
3. Remove any surface vegetation or existing hard surfaces using hand tools.
4. Using an air-pick excavate the trench, keeping to minimum dimensions required.
5. Roots occurring in clumps of 25 mm diameter and over are encountered they will be retained and kept damp by covering with hessian (re-wetted as required). If required, these should be severed only following consultation with an arboriculturist; as such roots might be essential to the tree's health and stability.
6. Feed in services.
7. Backfill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported topsoil to BS3882: 2015, firming down with heels.
8. Repeat step 7 until trench is filled.
9. Re-erect tree protection fencing as per approved plan.

4.50. The method of excavation above, for trenching within RPAs, is using air excavation. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. I can provide details of contractors supplying air excavation services if required.

4.51. Alternatively, trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

4.52. Reference can be made to NJUG Vol 4⁸ for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

Fencepost/Decking Installation in RPA

4.53. Stages for installing wooden posts:

No plant machinery to be used in the area for whatever reason

1. Remove TPF to allow access to area. If working inside the tree's RPA, ground protection boarding must be used to avoid compaction and contamination of the root zone.
2. Dig postholes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.

⁸ National Joint Utilities Group. (2010). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook. NJUG.

3. Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
4. Line hole with non-porous lining, for example, durable polyethene bag.
5. Insert post and fill post-hole with concrete to just below ground level.
6. Trim polyethene to ground level and fill with clean topsoil.
7. Reinstall TPF as approved.

Hard Surface Removal

4.54. Hard surfaces close to trees come in many different forms and makeups. Until removal (or trial pits) have ascertained the prescence/absence of roots in the area, the final treatment of the area cannot be determined. Therefore, the initial phase of this work is somewhat exploratory.

4.55. No surface removal within RPAs will occur without arboricultural supervision.

4.56. Stages for hard surface removal within tree protection areas:

1. Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work and oversee the process.
2. Plant machinery to run only on existing hard surfaces with consent from arboriculturist.
3. Plant may be used to carefully peel up existing tarmac and concrete.
4. Other surfaces are to be removed by hand (paving etc.)
5. Where any sub-base is unlikely to contain roots and only on approval from project arboriculturist, it may also be carefully removed.
6. If the supervisor concludes that there are no significant⁹ roots in the area following the surface (and possible sub-base) removal then there is no longer a need to proceed cautiously. The supervising arboriculturist will note their conclusions within the overall works record. Proceed to step 9.
7. If the supervisor concludes that significant roots are still present then the underlying ground levels are to be retained. No further excavation is to occur.
8. Any exposed roots and surrounding newly exposed areas to be covered with up to 200mm of topsoil, from elsewhere on site, or imported topsoil to BS3882¹⁰ Soil may be placed in area by plant but must be spread by hand.
9. As deemed necessary by the supervising arborist, tree protection barriers are to be erected to protect tree stems and, if appropriate, the newly exposed soft ground. Reference the Tree Protection Plan for approved tree barrier alignments.

⁹ To be site and tree specific. Subject to the supervising arboriculturist's judgement

¹⁰ BS3882:2015- Specification for topsoil and requirements for use. London: British Standards Institute.

10. Work record to be circulated by supervising arboriculturist and forwarded to the LPA as required.

No-Dig Structure Construction

4.57. The structure is to be built above ground. The only invasive work will be the installation of the supporting mini-piles.



Example of no-dig foundation for single-storey structure. © Quickbase

4.58. The following methodology is for guidance and must be subject to professional design and installation. The design must then be approved by the project arboriculturist before it is implemented.

4.59. An indicative section of no-dig construction is shown on the appended plan.

4.60. Stages of construction:

1. Contact project arboriculturist to hold pre-start site meeting, a 'toolbox' talk before starting work and provide Arboricultural Clerk of Works (ACoW) supervision throughout the process.
2. Grass sward to be removed as necessary using hand tools or a turf stripper.
3. Excavation to establish sites free of roots >25mm diameter for piles. To be carried out by hand or with an air excavation tool.
4. Piles installed using mini-rig with very low ground pressure: rig must be approved for use by project arboriculturist.
5. Void form material installed.

6. Slab base cast onto void form material.
7. Void form material removed to create void under slab
8. Remaining construction built on slab with no further excavation.

4.35. This specification must be designed to meet the following performance criteria:

- Construction will be above current ground (removal of grass sward/leaf litter by hand only).
- It will provide adequate resistance to applied loads, avoiding compaction of the soil.
- Provision will also be made for resistance to or tolerance of deformation by tree roots
- Allowance will be made for oxygen diffusion according to seasonal demand
- Water throughput to meet seasonal demand will also be possible (can be achieved by redirection of captured rainwater into hand dug land drains)

4.36. Any supports (such as a pile and beam construction may require) will be sited around any significant root masses. Sensitive air excavation prior to design will identify ideal locations.

4.37. Such techniques, for example pile and beam foundations, must be designed to cause minimal impact to the trees root system. This will include building above the current soil grade and using floating or cantilevered floors within the structure.

4.38. No plant machinery can be sited within the RPA. The use of back-acters or diggers to deposit construction materials within the area is acceptable, provided this can be achieved without causing damage to the trees canopy, and only under arboricultural supervision. The exception to this rule is when the use of piling rigs is required. In most cases it will not be possible to site a normal sized rig under the trees canopy and a 'mini-rig' will be required.

Demolition

4.39. All barriers and/or ground protection to be installed as per approved Tree Protection Plan prior to commencement on site.

4.40. Sensitive demolition must only occur under supervision from the project arboriculturist

4.41. Stages of demolition within tree protection areas:

1. No plant machinery to be sited on any exposed rooting area or soft ground;
2. Buildings to be folded in on themselves, or pulled away from trees;
3. Removal debris by hand or with plant machinery not located on any exposed rooting area;
4. Floor to be broken up with hand-held breaker and pieces removed by hand. Slab floor can be lifted carefully by machinery if appropriate;
5. Underlying ground levels to be retained. No excavation to occur;

6. Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil to BS3882 . Soil may be placed in area by plant but must be spread by hand;
7. Tree protection barriers to be erected in final position to protect any newly exposed soft ground (as advised by supervising arborist).

Excavation Within RPAs

1. Contact project arboriculturist to hold pre-start site meeting, 'toolbox' talk and supervise the operation.
 2. Remove barriers to allow access to area (if required).
 3. Identify sensitive area.
 4. Excavate with no-tines bucket, or by hand, under close supervision.
 5. If roots are found, clear by hand around them.
 6. If roots found are greater than 25mm diameter, then cover with damp hessian and keep moist until backfilled. If excavation requires all roots to be severed, then proceed as below.
 7. Cleanly sever roots with bypass secateurs, loppers or pull cut saw at right angles to root. Avoid tearing or ripping the root.
 8. Backfill as soon as possible to cover cut root ends.
- 4.53. If for whatever reason, the project arboriculturist feels that a tree's stability has been compromised during the operation, then the LPA shall be contacted and the arboricultural officer (or appropriate landscape officer) notified. A decision can then be made as to the best way forward.

5. Limitations of Use and Copyright.

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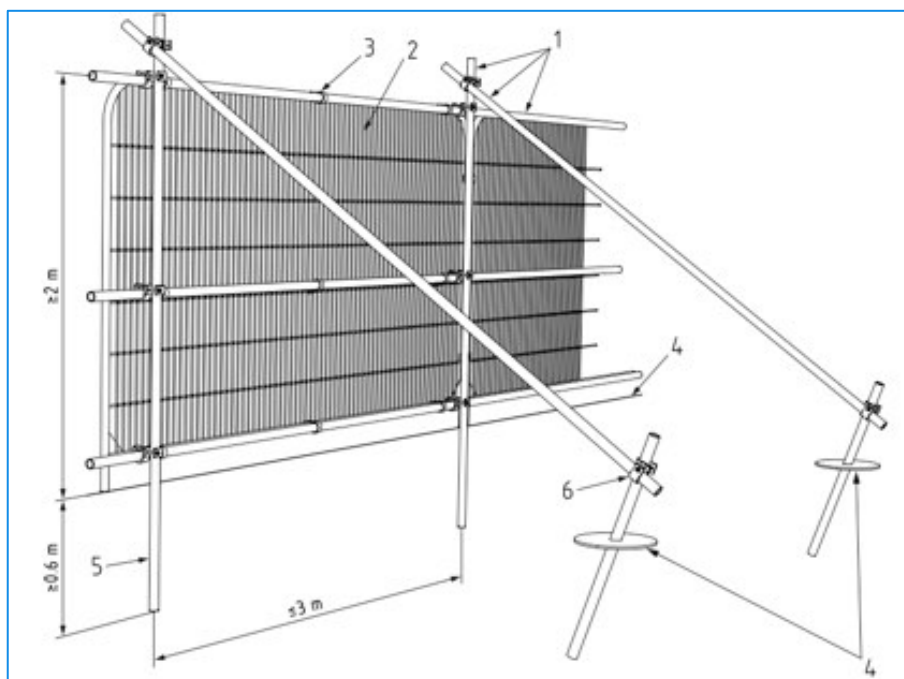
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Appendices

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i.

Tree Protection Barriers



TPF1: Default specification for protective barrier (Fig 2 from BS5837:2012)

1 Standard scaffold poles

2 Heavy gauge 2 m tall galvanised tube and welded mesh infill panels

3 panels secured to up rights and cross members with wire-ties

4 ground level

5 uprights driven into the ground until secure (minimum depth 0.6 m)

6 Standard scaffold clamps



TPF 2: Alternative fencing option: scaffold uprights with backstay



TPF 3: Alternative fencing option: on boots with backstay



TPF 4: Plastic barrier for low intensity areas of construction



TPF 5: Chain-link for low intensity areas on large projects

ii.

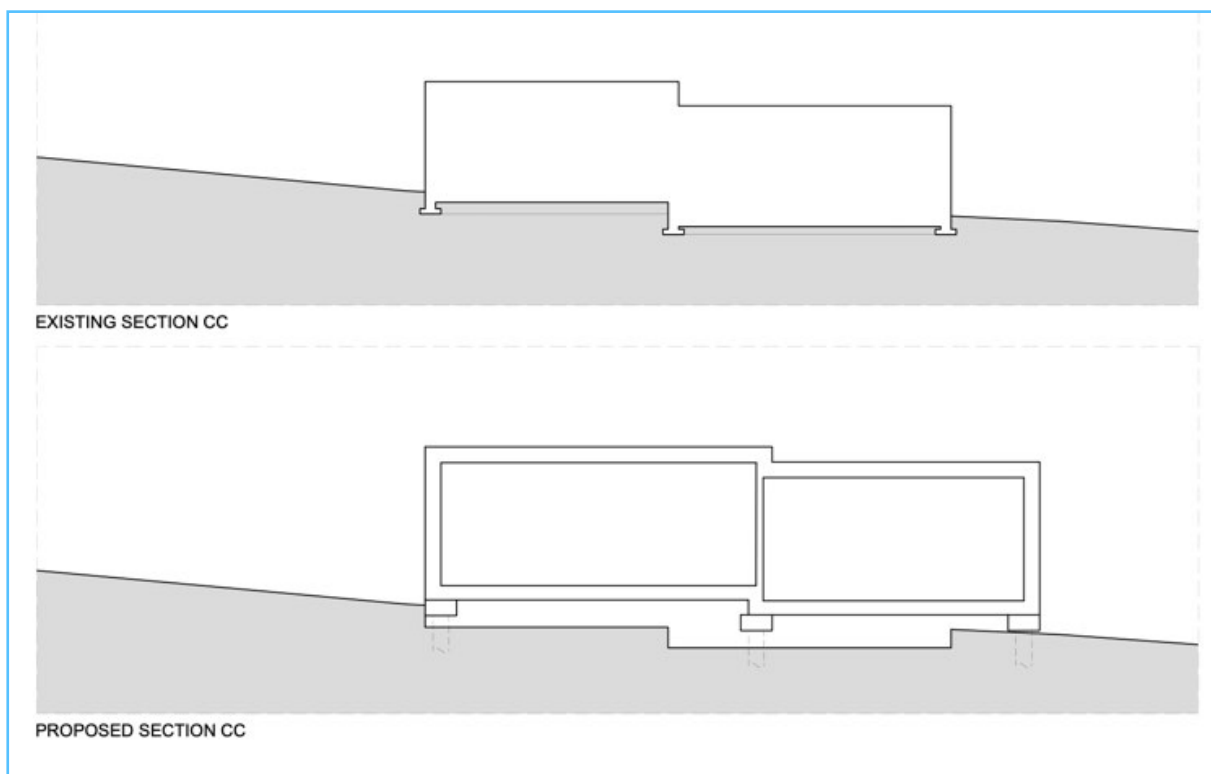
Tree Categories Explained

BS5837:2012 Table 1 -Cascade chart for tree quality assessment

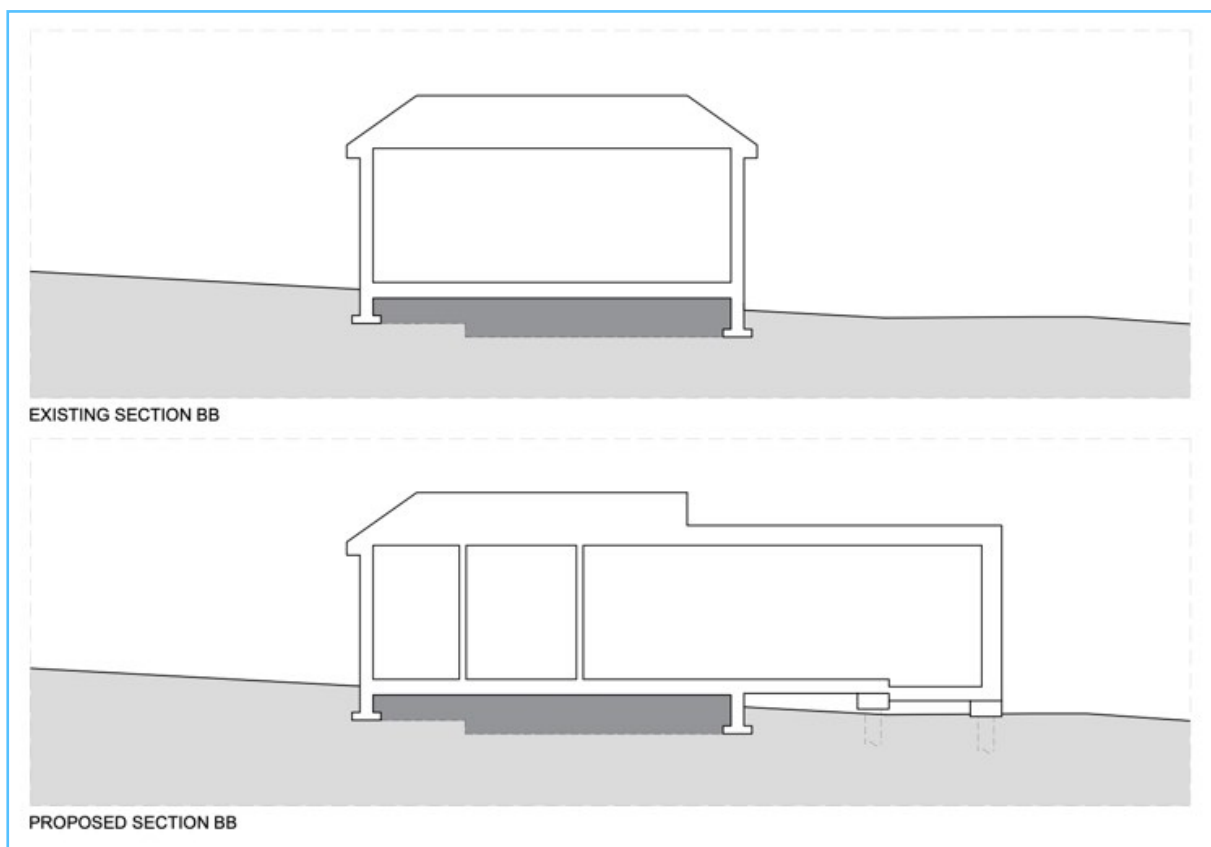
Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<p>*Trees that have 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 category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</p> <p>*Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</p> <p>*Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</p> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>		
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

iii.

Cross-Sections



Section 1: Existing and proposed outbuilding (aspect south)



Section 2: Existing dwelling and proposed extension (aspect south)

iv.

Protection Plan

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BS5837 Tree Survey Schedule

Surveyed Trees / Groups

Ref	Species	Common Name	Height	Stem Diameter	Canopy NESW	Crown Clearance	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	No.	BS Cat
01	Tilia x europaea	European Lime	16m	600#mm	5 N 5 E S S 5 W	2.5m	Mature	Fair overall Physiological and Structural condition. Typical basal growth.	20 Years	31/3/2022	1	B1
02	Fagus sylvatica	Common Beech	20m	800#mm	8 N 9 E 8 S 5 W	4#m	Mature	Good overall Physiological and Structural condition. Off-site and inaccessible- dimensions estimated. Rooted on retained ground. RPA restricted by retaining wall and garage.	40 Years	31/3/2022	1	A1
03	Taxus baccata	English Yew	12m	600mm	6 N 6 E 6 S 6 W	2m	Mature	Good overall Physiological and Structural condition.	20 Years	31/3/2022	1	B1
04	Quercus robur	Pedunculate Oak	13m	300#mm	3.5 N 3.5 E 3.5 S 3.5 W	4m	Semi-Mature	Fair overall Physiological and Structural condition. Seedling becoming established.	10 Years	31/3/2022	1	C1
05	Pinus nigra	Black Pine	18m	700#mm	6 N 6 E 9 S 6 W	5m	Mature	Good overall Physiological and Structural condition. Off-site and inaccessible- dimensions estimated.	40 Years	31/3/2022	1	A1
06	Fagus sylvatica purpurea	Copper Beech	23m	1000mm	10 N 10 E 10 S 10 W	1m	Mature	Good overall Physiological and Structural condition. Two comparatively small ganoderma brackets to North. Pronounced graft line.	40 Years	31/3/2022	1	A1
07	Fagus sylvatica purpurea	Copper Beech	11m	600#mm	4 N 6 E 6 S 1 W	4m	Mature	Suppressed and weak. Dieback and deadwood.	10 Years	31/3/2022	1	C1
08	Chamaecyparis lawsoniana	Lawson Cypress	9m	400mm	2.5 N 2.5 E 2.5 S 2.5 W		Mature	Small ornamental.	10 Years	31/3/2022	1	C1
09	Chamaecyparis lawsoniana	Lawson Cypress	10m	700#mm	4 N 4 E 4 S 4 W		Mature	Off-site and inaccessible- dimensions estimated. Fair overall Physiological and Structural condition.	10 Years	31/3/2022	1	C1
10	Pinus nigra	Black Pine	21m	700mm	7 N 7 E 7 S 7 W	7m	Mature	Good overall Physiological and Structural condition. Off-site and inaccessible- dimensions estimated.	40 Years	31/3/2022	1	A1
11	Prunus cerasifera 'Pissard'	Purple Cherry Plum	5.5m	300mm	2 N 3 E 3.5 S 3 W	2m	Mature	Small ornamental.	10 Years	31/3/2022	1	C1
12	Carpinus betulus	Hornbeam	6m	200mm	3 N 3 E 3 S 3 W	2m	Semi-Mature	Fair overall Physiological and Structural condition.	10 Years	31/3/2022	1	C1
13	Taxus baccata	English Yew	4.5m	200#mm	2.5 N 2.5 E 2.5 S 2.5 W	2m	Early-Mature	Fair overall Physiological and Structural condition. Small.	10 Years	31/3/2022	1	C1
14	Robinia pseudacacia	False Acacia	14m	300#mm	4 N 6 E 3 S 2 W	4m	Mature	Off-site and inaccessible- dimensions estimated. Asymmetric crown.	10 Years	31/3/2022	1	C1
15	Laburnum anagyroides	Common Laburnum	3.5m	200mm; 100mm	2 N 3 E 2 S 1 W	2m	Mature	Small ornamental. Limited wider landscape value.	10 Years	31/3/2022	1	C1
											Total :15	

Survey by Mark Welby DipArb(RFS), TechCert(ArborA), FArbArb
Arboricultural Association Registered Consultant
www.markwelby.com

denotes estimated dimension. Typically due to the tree being inaccessible.
Where dimensions are not listed please refer to the plan graphics for an indicative representation (typically for groups).

TPOs

Trees protected by a Tree Preservation Order

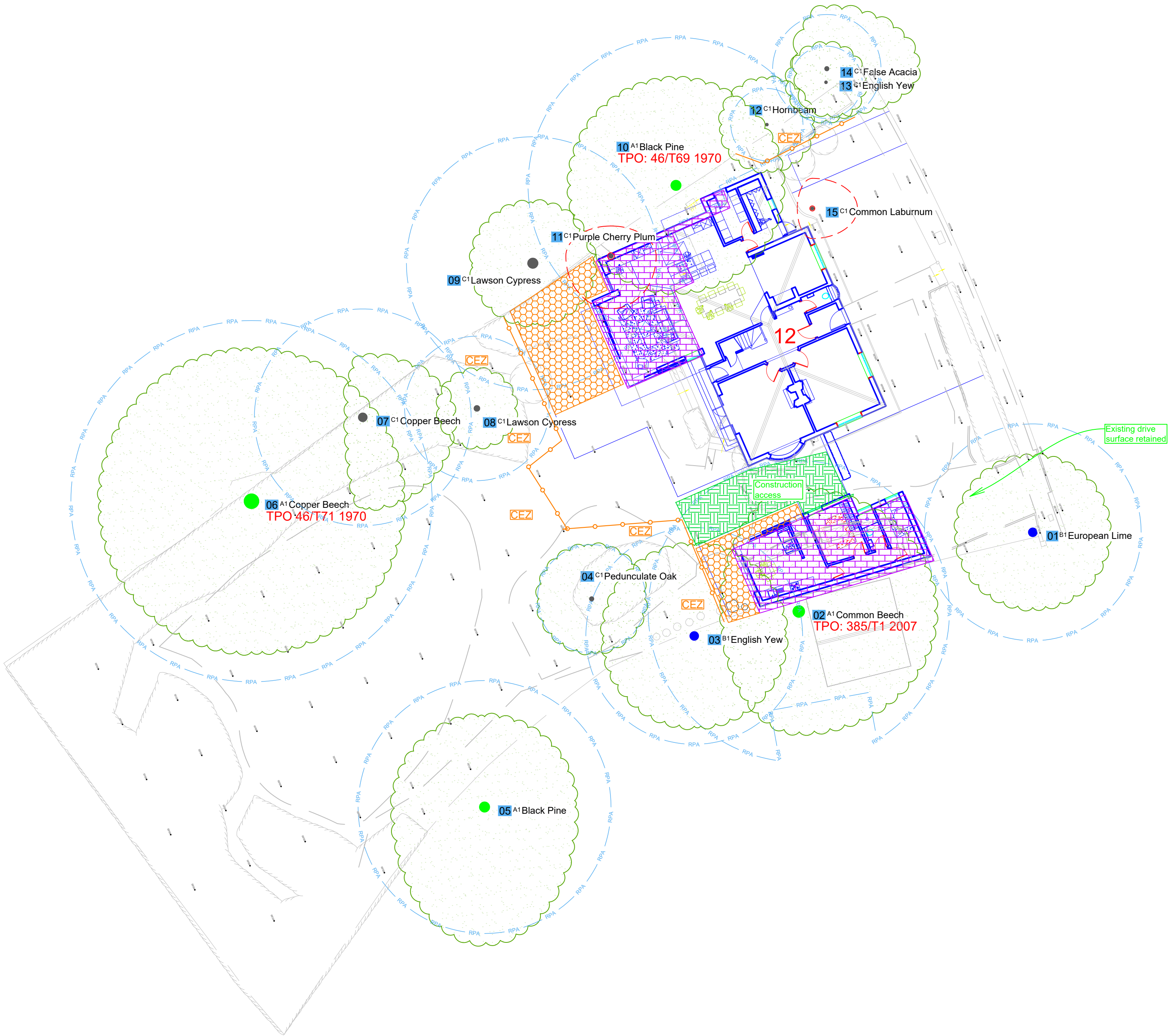
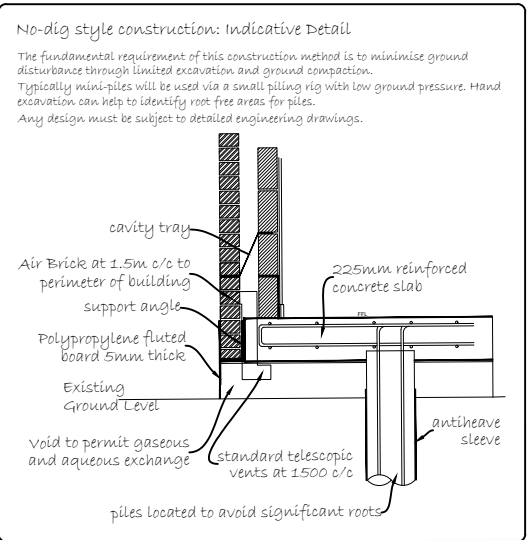
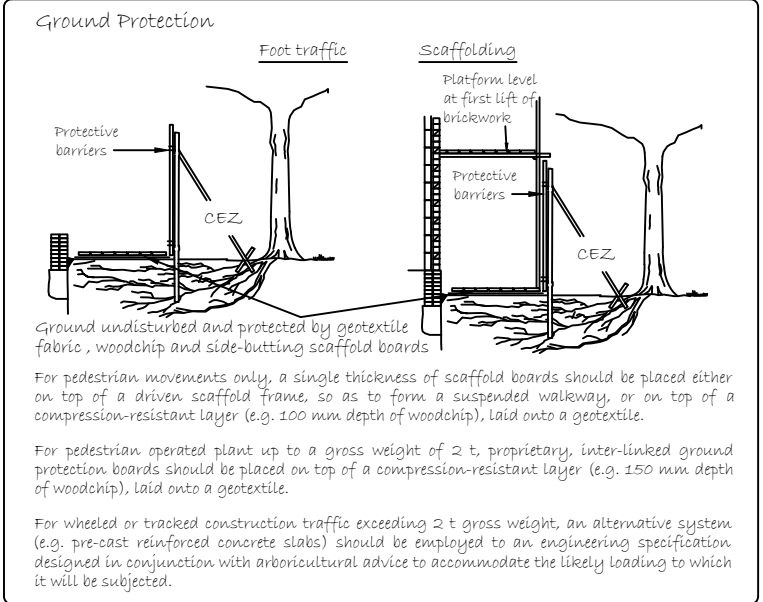
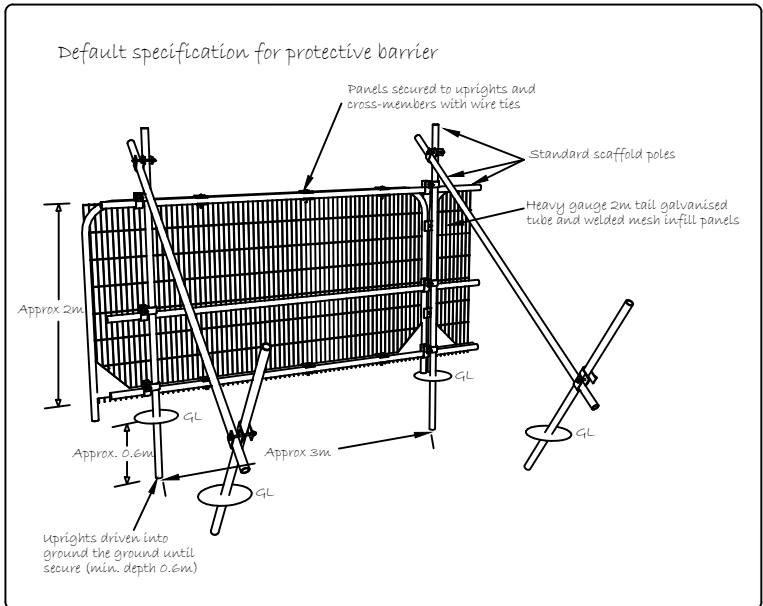
Ref	Common Name	Category
02	Common Beech	A1
06	Copper Beech	A1
10	Black Pine	A1

Trees / Groups for Removal

Ref	Species	Common Name	Category	No.
11	Prunus cerasifera 'Pissard'	Purple Cherry Plum	C1	1
15	Laburnum anagyroides	Common Laburnum	C1	1
Total :2				

Retained Trees and Tree Work Schedule

Ref	Species	Common Name	Tree Work	No.	Category
01	Tilia x europaea	European Lime	Lift crown to give 5m clearance.	1	B1
02	Fagus sylvatica	Common Beech		1	A1
03	Taxus baccata	English Yew		1	B1
04	Quercus robur	Pedunculate Oak		1	C1
05	Pinus nigra	Black Pine		1	A1
06	Fagus sylvatica purpurea	Copper Beech		1	A1
07	Fagus sylvatica purpurea	Copper Beech		1	C1
08	Chamaecyparis lawsoniana	Lawson Cypress		1	C1
09	Chamaecyparis lawsoniana	Lawson Cypress		1	C1
10	Pinus nigra	Black Pine		1	A1
12	Carpinus betulus	Hornbeam		1	C1
13	Taxus baccata	English Yew		1	C1
14	Robinia pseudacacia	False Acacia		1	C1
Total :13					



Construction Exclusion Zone

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

- inside the exclusion zone, the following shall apply:
 - No mechanical excavation whatsoever;
 - No excavation by any other means without arboricultural site supervision;
 - No hand digging without a written method statement having first been approved by the project arboriculturist;
 - No lowering of levels for any purpose (except removal of grass sward using hand tools);
 - No storage of plant or materials;
 - No storage or handling of any chemical including cement washings;
 - No vehicular access;
 - No fire lighting.

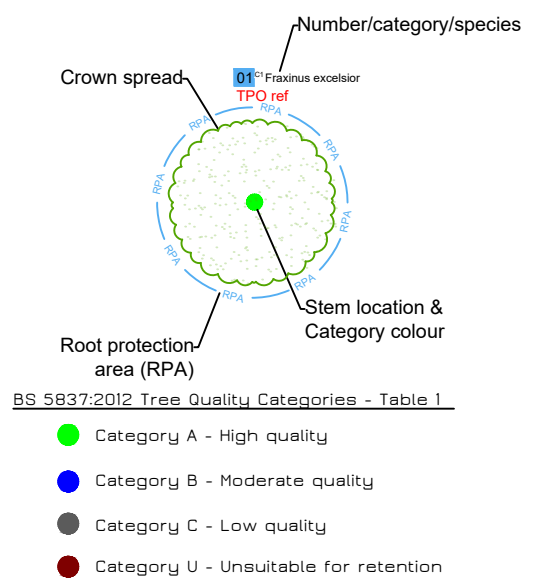
In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

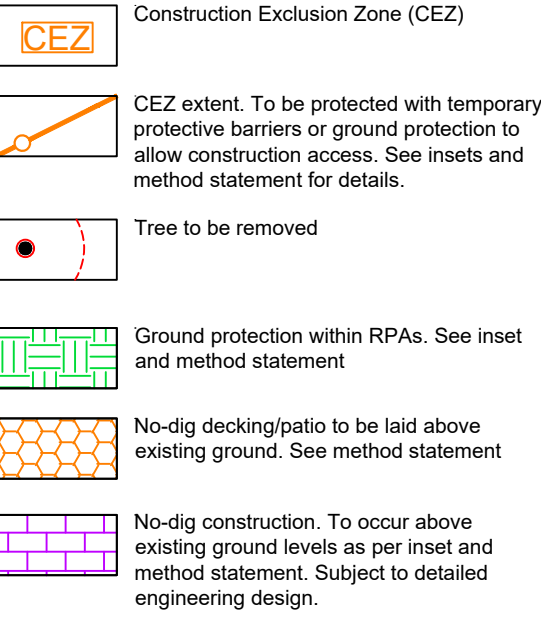
All weather signs shall be erected at reasonable intervals on the barriers. See example inset



Key



Key



NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2012 and current arboricultural best practice.

- The reference numbers of surveyed trees and groups of trees are shown. Stem locations within groups may be estimated, and indicative of canopy only.
- The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment (VTA) method.
- Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- Height dimensions are estimated and are given in metres.
- Trunk/stem diameters are measured in mm at 1.5 metres above ground level, unless otherwise stated. Where this is not possible, then Figure C1 of the British Standard is followed.
- Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).

Base plan/site survey reference: 17423_12 Burgh Heath Road_220708.dwg

Statutory Tree Protection
Tree Protection Orders: Yes. See plan.

Conservation Area: NO

Felling licence: Garden areas are exempt.

This plan has been drafted in colour. A monochrome version must not be relied upon

Date	Notes	Rev

Tree Protection

12 Burgh Heath Road
Epsom
KT17 4LJ

Date: 19/07/2022 Scale: 1:200 @A1

DWG Ref: MW.22.0315.TPP

