Arboricultural Impact Assessment

October 2018

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335 Queens Road, Maidstone, Kent

October 2018

Chailey Homes

10 Cophall Farm Business Park

Effingham Road

Copthorne

West Sussex

RH10 3HZ

	Name	Date
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Contents

1. Executive Summary

Site Location

1.1 The site is situated at the rear of 355 Queens Road in Maidstone, adjacent to Queens Avenue. It has a central OS nation grid reference of TQ747561. The surrounding land use is comprised of suburban residential development in all directions with Queens Avenue fronting the eastern site boundary. The location of the site within its environs is shown in figure 1.

Figure 1: Location of Site and Environs

Proposal

1.2 A proposal has been outlined to construct a detached dwelling within the rear garden of 335 Queens Road. The dwelling will have a private garden and driveway connecting to Queens Avenue on the eastern site boundary.

Tree Removals

1.3 Tree T4 (category C cypress) will be removed to facilitate the proposed development.

Access Facilitation Pruning

1.4 It is anticipated that T5 (category C yew) will require access facilitation pruning to enable the proposed construction works and to integrate with the proposed development.

Works within Root Protection Areas

1.5 The proposed driveway will encroach the root protection areas of T5 and T6. The impact on these trees can be mitigated by implementing a no-dig road specification.

2. Introduction

Instruction

2.1 Phlorum has been instructed by Chailey Homes to provide an arboricultural impact assessment in accordance with BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*' for the proposed development at 335 Queens Road in Maidstone.

Objectives of Report

2.2 This report has been undertaken with the following objectives:

- To record a schedule of significant trees (dimensions and locations) situated at the proposed development site.
- To assess the quality and value of the existing tree stock in terms of arboricultural, landscape, historical/conservation, or public amenity value based on the context of the site on the date of the survey.
- To provide information relating to planning constraints that may restrict works to trees at the site.
- To identify the tree removals and pruning works that will be required as a result of the proposed development and to assess the impact of the tree works.
- To assess the potential impact the proposed construction works will have on retained trees and to recommend mitigation measures to reduce the impact of construction works on retained trees.
- To assess the post development relationship between trees and the proposed development.
- To specify protection measures that will need to be implemented to ensure retained trees (above and below ground parts of the trees as well as their rooting medium) are not damaged by demolition, construction or landscaping activities.

Scope of this Report

2.3 This report is concerned with all significant trees and arboricultural features located within the site boundary. Additionally, trees located around the curtilage of the site have also been surveyed when they are considered likely to have the potential to impact on the development (in relation to root and crown protection or foundation design).

Contents of Report

2.4 This report includes the following:

Initial tree survey comprising:

- A summary of the existing tree stock and notable arboricultural features.
- Tree Constraints Plan in accordance with BS5837: 2012.
- Tree Survey Schedule containing the relevant measurements and information for each tree or tree group as required in BS5837: 2012.

Arboricultural impact assessment comprising:

- A schedule of trees to be retained/removed.
- A schedule of access facilitation pruning required for the development.
- An assessment of the impact construction works will have on retained trees and mitigation measures to be implemented.
- An assessment of post development pressures on trees.
- Recommendations for post development arboricultural management.
- Tree Retention Plan in accordance with BS5837: 2012.
- Tree Survey Schedule including management recommendations related directly to the proposed development.

Arboricultural method statement comprising:

- Scaled Tree Protection Plan in accordance with BS5837: 2012.
- A schedule of methodologies to be implemented during the construction phase of development to ensure retained trees are adequately protected.

Documents and Information Provided

2.5 The following documents were used to aid the preparation of this report:

- Drawing ref. 1606 – Topographical Survey; and
- Drawing ref. 1770-03 – Proposed Site Plan.

3. Initial Tree Survey

Site Visit

3.1 A site visit was carried out on 25th January 2018. The weather conditions at the time were light cloud and dry. The visibility was adequate for visual tree inspection from ground level.

Tree Survey Information

3.2 The following information was recorded in the Tree Survey Schedule for each individual tree (average dimensions are recorded for groups):

- Tree reference number.
- Species (common and scientific name)
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for multi-stemmed trees with six or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth (for individual trees only).
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree(s) including any notable features).
- Preliminary management recommendations (prescriptions for tree management processes based on the current land use and not related to the prospective development).
- Tree categorisation (see below).
- Root protection area (m^2).
- Root protection radius (m).

Tree Catergorisation

3.3 The condition and value of each tree was evaluated based on the current land use. Each tree or tree group has been awarded either category A, B, C or U and a sub category of either 1,2 or 3 or a combination of the sub categories.

3.4 Tree categorisation summary:

- A – Trees of good condition and high arboricultural, landscape or conservation value. Must have a potential life span in excess of forty years.
- B – Trees of moderate condition, with minor defects or sub-optimal form but are still of modest arboricultural, landscape or conservation value. Must have a potential life span in excess of twenty years.
- C – Unremarkable trees of poor condition or form with limited arboricultural, landscape or conservation value, or trees with a stem diameter under 150mm. Must have a potential life span in excess of ten years.
- U – Trees of such impaired condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years. These trees do not need to be removed if they are not dangerous and do not conflict with the proposed development, but should not be considered a constraint to development.

3.5 Tree sub categorisation summary:

- 1 – Trees have mainly arboricultural value, e.g. trees of good condition, form and vitality or rare tree species.
- 2 – Trees have mainly landscape value, e.g. trees of landscape prominence, that serve to screen unsightly views or that are required for privacy. Also trees present in groups that attain higher collective rating that they would as individuals.
- 3 – Trees with mainly cultural value including conservation, e.g. commemorative trees, trees of historical significance or veteran trees.

3.6 Each tree can only be categorised as A, B or C but may comply with more than one sub category. A cascade chart further explaining how tree categorisation is decided is included in Appendix C.

Root Protection Areas

3.7 A root protection area represents the minimum area of root growth required to support a tree. It is a standardised calculation based on the stem diameter(s) measured at 1.5m and is not necessarily representative of the actual or total rooting area. The formulas used to calculate root protection areas are shown below:

Table 1: Root protection area formulas

For single stemmed trees

$$\text{Root protection area } (m^2) = \frac{(\text{stem diameter (mm)} \times 12)^2 \times \pi}{1000}$$

For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \ldots + (\text{stem diameter 5})^2}$$

For trees with more than five stems, the combined stem diameter is calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

3.8 The root protection areas are plotted onto the Tree Constraints Plan in Appendix A, and recorded in the Tree Survey Schedule in Appendix B. These are represented as a circle on the plan (unless significant rooting constraints are present), and are colour coded depending on the category the tree has been awarded. Where existing site conditions/features are present that are deemed likely to have affected the root morphology, the root protection areas have represented as a polygon of equivalent area.

3.9 The proposed layout should avoid level changes or the placement of new buildings and areas of hard surfacing within the root protection areas of retained trees. In certain situations, engineered solutions are available to allow construction within the root protection areas however further input from an arboriculturalist should be sought regarding their site-specific viability before these methods are relied upon.

3.10 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally as well as the absorption of moisture and nutrients from the soil. They also act as storage and transport for water and nutrients.

3.11 Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above the growing medium, (i.e. from porous to non-porous), can alter the resources available to the tree, which in turn can lead to its decline.

3.12 The majority of root growth is usually found within the top 600mm-1000mm of soil. As such, even shallow disturbance within root protection areas can potentially have a significant impact on the trees.

3.13 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during any proposed works. Any construction works within a root protection area required for the proposed layout must be justifiable within the arboricultural impact assessment.

Limitations of Survey

3.14 The survey methodology was restricted to a visual tree assessment from ground level. No tree climbing or ground investigation was carried out for this report. Where existing site constraints are present such as ivy covered trees, a very dense under-storey, or where trees are located on third party land to which access was not granted, tree dimensions were estimated by eye as accurately as possible.

3.15 This survey represents a preliminary overview of the condition and value trees at the site. It is not a detailed assessment of any individual tree and although preliminary management recommendations are included, this report will not be sufficient to be used as a detailed condition and safety survey.

3.16 The information and measurements in this report are representative of the date of the site visit. The tree survey data will need to be updated to reflect tree growth and changes in the condition of trees after prolonged periods.

Site Layout

3.17 The site comprises an L shaped plot comprised of part of the rear garden of 335 Queens Road. It fronts onto Queens Avenue beyond a 2.25m stone wall on its eastern boundary. Garden shrubs and lawn areas are located throughout the garden with three small trees on the northern boundary. Further trees are located outside the eastern boundary on Queens Avenue.

Appraisal of Tree Stock

3.18 The most significant trees surveyed for this report comprise T1-T3, which are three street trees on Queens Avenue (two sycamores and a lime). All three of these trees are noted as being of good overall condition and form, with no major visible defects observed. The numerous street trees on Queens Avenue make a significant impact to the visual character of the area, and the three street trees surveyed for this report contribute to the aesthetic appeal of the road. They have been awarded category B1/2 for their arboricultural and landscape value.

3.19 There is a 2.25m brick wall located on the boundary between T1-T2 and the site. It is likely that the wall footings will have affected the root morphology of the street trees, however it is feasible that roots will extend beneath the wall and into the site, particularly given the size of the trees, their proximity to the wall and the presence of the impermeable road surface on the opposite side of the trees. As such, the presence of roots within the site must be assumed unless a root investigation is undertaken and verified by an arboriculturalist, and the root protection areas have not been amended on the Tree Constraints Plan to exclude the land beyond the wall.

3.20 The only trees of significance located within the site boundary comprise two cypresses and a yew on the northern boundary (T4-T6). The root protection area of T4 encroaches the building footprint of Tall Trees (third party house) to the north of the site, and has been amended on the Tree Constraints Plan to reflect this rooting constraint.

3.21 Trees T4-T6 are not noted as being particularly large, high-quality or prominent specimens. Although T5 and T6 to provide some screening benefit from the neighbouring properties to the north of the site, they make little contribution to the street scene. T4-T6 have been awarded category C2

3.22 Measurements and further information for each tree can be viewed in the Tree Survey Schedule in Appendix B.

Tree Categorisation Summary

3.23 A total of six trees were surveyed and recorded in the Tree Survey Schedule. Three were categorised as B and three were categorised as C.

Table 2: Tree Categorisation Summary

Categorisation	No.trees
A	-
B	3
C	3
U	-
Total	6

Statutory Tee Protection

3.24 Maidstone Borough Council's online mapping tool was used on 8th February 2018 to establish restrictions to tree works at the site. No tree preservation order (TPO) was shown to protect the trees surveyed for this report and the site is not located within a conservation area. The three street trees will be owned and managed by the local authority, therefore any works to these trees would require permission.

3.25 Any persons proposing to undertake tree works should check the status of the trees with the local authority, and gain the necessary consent before the works are undertaken. Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

4. Arboricultural Impact Assessment

Tree Removals

4.1 Trees to be removed for the proposed development are shown with dashed outlines on the Tree Retention Plan in Appendix A and are shaded to indicate their BS5837 tree category.

4.2 The only tree requiring removal will be T4 (category C cypress). This tree will be removed as a result of direct conflict with the proposed dwelling, therefore no engineered solutions are available to allow its retention. Due to the size, condition and location on the site boundary, T4 would not be a suitable candidate for transplanting within the development.

4.3 The loss of T4 will not negatively impact on the street scene, or result in a loss of privacy and screening for Tall Trees (third party property to the north of the site). As such mitigation planting is not specified in this report.

Access Facilitation Pruning

4.4 The only tree expected to require access facilitation pruning (based on the information currently available) is T5 (category C yew). This tree's crown (predominantly low lateral foliage) should be pruned back from the proposed driveway to create a minimum buffer of 1m. This will allow installation of tree protection fencing during the construction period, and set the desired dimension for future crown reductions adjacent to the driveway.

4.5 Any additional requirements for access facilitation pruning that cannot be predicted at this stage in the design process (e.g. for contractor compound or movement of large or specialist plant machinery) should be discussed at the pre-commencement meeting with the project arboriculturalist and agreed with the local authority arboricultural officer. No works may be carried out on the street trees without prior permission from the local authority.

4.6 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*', as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance. It is also recommended that all tree works be carried out by an Arboricultural Association approved contractor. Approved contractors are expected to work to industry best standards, and the Arboricultural Association website (www.trees.org.uk) contains contact details and information on engaging a suitable contractor.

Works within Root Protection Areas

4.7 The proposed dwelling completely avoids the root protection areas of all retained trees, therefore use of sympathetic foundation design to allow retention of tree roots is not deemed necessary. NHBC guidelines on foundation depth in proximity to trees must still be followed. This will be determined by a structural engineer but should be guided by information in this report and appropriate sampling to determine soil profiles at the site.

4.8 The footings of the existing boundary wall are likely to affect the root morphology of T1 and T2, resulting in the highest concentration of roots extending parallel with the wall along the pavement and grass verge. The position of the proposed new crossover takes this into account by completely avoiding the full root protection areas of all street trees, and leaving an additional 1.1m buffer from the edge of the root protection area for T1 (the street tree closest to the crossover).

4.9 A root protection area is a standardised calculation for the minimum area of root growth required to support a tree, not the total rooting area. It is therefore feasible that tree roots will be revealed when the new crossover is built (it would not be feasible to construct a crossover without excavation), however sufficient root growth should be retained to ensure the trees remain viable with a negligible impact on their physiological condition or stability.

4.10 Within the site, the new driveway encroaches the root protection areas of T5 and T6 in the areas highlighted pink on the Tree Retention Plan. To ensure these trees remain viable post development, the surface within these areas shall be constructed to the following basic specification:

- Within the root protection areas, the driveway shall be constructed directly onto the existing ground level without soil stripping (other than the careful removal of surface vegetation). If necessary a layer of sharp sand (or other inert granular aggregate) may be used to fill divots to create a level surface onto which the hard standing can be constructed.
- The driveway shall be constructed on a CellWeb TRP cellular confinement system filled with clean angular stone (Type 4/20mm). This will provide a permeable base for the driveway that will spread the loads of vehicles to reduce post development compaction of the soil beneath (compacted rooting medium can have a significant detrimental impact on root function).

- The cellular confinement system shall be installed directly onto a TreeTex Geotextile membrane. A second membrane shall be installed above the cellular confinement system as well. These membranes will prevent the migration of soil, construction debris and other materials migrating through the cellular confinement system as that would otherwise impact on the porosity of the completed surface. The membranes should also help filter pollutants from vehicles from leeching into the rooting medium.
- The wearing course for the new driveway shall be permeable (loose gravel, resin bound gravel, permeable tarmac or block paving with permeable spacers and bedding aggregate) to allow continued moisture ingress and gaseous diffusion with the rooting medium.
- Traditional kerbing usually requires linear trenching to install so will not be suitable for use within the root protection areas of retained trees. As an alternative, kerbing with an above ground haunch and potentially metal support pins, treated timber edging, aluminium L-shaped edging, galvanised metal edging or no fixed edging shall be used.

Services

4.11 Details of the routing of services for the proposed development are not currently available. All underground services should be located outside the root protection areas of retained trees and above ground services should be located outside the anticipated mature crown spreads. Sympathetic methodology to enable the installation of services within root protection areas (in certain instances) is available, however there will always be a potential arboricultural impact and arboricultural advice must be sought regarding the suitability of these methods before they are relied upon. If it is achievable, root protection areas should be completely avoided.

4.12 Once details of the routing of new services become available, prior to commencement, these shall be reviewed by the project arboriculturalist. The arboriculturalist shall then confirm either that no works will be carried out within root protection areas or provide details of the methodology required to ensure the works are carried out in accordance with NJUG10 ‘Guidelines for the planning, installation and maintenance of utilities in proximity to trees’ and BS5837: 2012.

Post Development Tree Pressures and Management

4.13 Due to the orientation of the proposed dwelling in relation to all retained trees, tree shade is not expected to impact on habitable rooms or inhibit the reasonable use of the house. The garden areas should also not be negatively impacted by tree shade. It is not anticipated that there will be any requirement to implement a cyclical pruning regime or to remove additional trees to maintain adequate levels of natural light.

4.14 Due to the orientation of Queens Avenue and the location of the street trees, it is not anticipated that visibility from the new crossover along Queens Avenue will be inhibited by the trees. The street trees have previously been crown lifted, and should be subject to cyclical inspection and maintenance by the local authority. The existing maintenance requirements for these trees are not expected to change as a result of the proposed development.

4.15 Tree T5 will need to be pruned during the pre-development tree works. Post development it is anticipated that the tree will need to be re-pruned on a cyclical basis in order to maintain adequate clearance from the driveway. This should not occur on such a frequency so as to overburden future residents, or create unreasonable pressure to fell the tree in the future (although the tree is considered to be of limited arboricultural or landscape value regardless).

Conclusions

4.16 Based on the above assessment, trees recommended for retention in this report can be adequately protected during the proposed construction works and successfully integrated into the site post development.

4.17 Provided the approaches, methodologies and exclusion zones described in the arboricultural method statement are follows, trees proposed for retention in this report should not be adversely affected by the proposed development.

5. Aboricultural Method Statement

General Requirements

5.1 This method statement is based on the information available on the date of the report. Updates to the arboricultural method statement and Tree Protection Plan may be required following detailed design stage of development including the routing of services and formation of a construction management plan.

5.2 The arboricultural method statement and Tree Protection Plan shall remain on site for the duration of construction and landscaping works and be available to site operatives at all times. All operatives at the site shall be briefed about tree related factors as part of their site induction.

5.3 Any variation from the methodology described in this method statement shall be discussed with the supervising arboriculturalist and agreed with the local authority arboricultural officer.

Initial Tree Works

5.4 The tree works specified in the management column of the Tree Survey Schedule shall be carried out as the first stage of development.

5.5 The stumps of shrubs and trees that are located within the root protection areas of retained trees shall be cleared using controlled hand tools (e.g. stump grinder or mattock). Shrubs and vegetation located within the root protection areas of retained trees shall also be cleared using hand tools (e.g. spade, turf cutter or brush cutter). Plant machinery shall not be used to scrape vegetation within root protection areas or access the site until the tree protection barriers have been installed.

5.6 If bonfires are lit to dispose of arising's from the vegetation or tree clearance works, an assessment of wind direction and strength shall be made to ensure flames cannot extend within 5m of any part of a retained tree. No bonfires shall be lit within a root protection area.

5.7 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

5.8 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*' as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

5.9 It is recommended that an Arboricultural Association approved contractor carry out all tree works. Approved contractors are expected to work to industry best standards. The Arboricultural Association website contains contact details and information on engaging a suitable contractor.

Tree Protection Barriers

5.10 The root protection areas of retained trees must be left free from disturbance, and protected from contamination or compaction during the proposed works. Protection shall comprise the installation of tree protection to form construction exclusion zones.

5.11 Tree protection fencing shall initially be installed in the primary locations highlighted dark blue on the Tree Protection Plan. It shall be moved to the secondary location highlighted orange when the new driveway is constructed within the root protection areas of T5 and T6.

5.12 The specification for tree protection fencing shall be metal welded mesh panels (e.g. Heras panels), in concrete or rubber feet. The panels shall be supported by metal stabiliser struts mounted on either a base plate secured by ground pins, or in a block tray (refer to Appendix D). Any variation from this specification for tree protection fencing shall be discussed with the project arboriculturalist and agreed in writing with the local authority arboricultural officer.

5.13 Signs shall be affixed to the fencing as shown in Appendix E to explain its purpose. The signs shall be affixed at a reasonable size and frequency to ensure they are easily visible to operatives at the site.

5.14 The tree protection fencing shall be installed following the initial tree works, prior to construction traffic entering the site or any plant movement/activity. They shall remain in place for the duration of construction and hard landscaping works unless otherwise stated in this report or agreed with the project arboriculturalist.

5.15 The areas protected by tree protection fencing (highlighted yellow on the Tree Protection Plan) shall be referred to as the construction exclusion zones. The following restrictions shall apply within the construction exclusion zones:

- No vehicular access shall be permitted.
- Regular pedestrian access shall be restricted unless on suitable ground protection measures agreed with the project arboriculturalist.
- No storage of construction materials shall occur.

- No storage of building spoil or construction debris (including short-term temporary storage) shall occur.
- No harmful chemicals shall be stored or handled.
- No fires shall be permitted.
- No mechanical excavation including regrading of levels shall occur.
- There shall be no change in ground level unless undertaken under the supervision of the project arboriculturalist.
- No construction activities including installation of new permanent hard standing shall be undertaken unless otherwise specified in this method statement.

Storage and Handling of Harmful Chemicals

5.16 Provision must be taken to prevent the storage and handling of harmful chemicals within the root protection areas of retained trees. Harmful chemicals include fuels, oils, bitumen, builder's sand (which has a high salt content) and cement. Provision shall also be made to prevent the storage and handling of harmful chemicals in areas proposed for further planting if the existing soil is intended to be retained.

5.17 Cement mixing shall always occur outside the construction exclusion zones. If cement mixing is to occur close to the construction exclusion zones, or there is the potential for cement washings to leech into a root protection area, adequate, bunded ground protection measures must be used. This could comprise impermeable plastic sheeting under wooden boards (to prevent tears) surrounded by a raised lip.

5.18 All other chemicals that are harmful to trees must be stowed in suitable containers and stored away from the construction exclusion zones unless adequate, bunded ground protection measures are implemented to prevent spillages leeching into root protection areas.

Contractor Facilities

5.19 A suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturalist during the pre-commencement meeting if not already specified in a construction management plan. These facilities must be located outside the root protection areas of all retained trees unless on adequate ground protection measures that have been agreed with the project arboriculturalist including existing hard standing. Provision must also be taken to prevent exhaust fumes or hot air from generators or kitchen facilities from damaging foliage within the crowns of retained trees.

Constructing Driveway within Root Protection Areas of T5 and T6

5.20 Within the root protection areas of T5 and T6, the new driveway shall be constructed to the basic specification described in the arboricultural impact assessment. The detailed specification shall be provided by an engineer but shall be signed off by the project arboriculturalist to ensure compliance with arboricultural requirements.

5.21 Prior to construction of the driveway, the existing surface vegetation shall be removed by using either a suitable herbicide (to be provided by a specialist to ensure it does not harm retained tree roots) or by using controlled hand tools such as a spade or turf cutter. Plant machinery shall not be operated within root protection areas unless supervised by the project arboriculturalist.

5.22 If access is required onto the cellular confinement system before the wearing course installed, a temporary sacrificial surface shall be installed above a the Treetex Geotextile separation fabric to prevent soil and other building debris blocking the airspaces in the cellular confinement system, which could otherwise reduce the porosity of the completed driveway.

5.23 The finished level of the no-dig driveway will be higher than the surrounding un-surfaced ground. To mitigate this, clean-screened topsoil may be banked around the edge of the driveway. It is recommended that no less than a gradient of 1:3 be used as increasing the ground level within a root protection area can disrupt root function. It is also necessary to avoid banking soil around the buttresses or buttress roots of retained trees.

Excavating New Crossover

5.24 The new crossover onto Queens Avenue will be located outside the root protection area of T2, however tree roots may still be encountered. Within the above area (highlighted pink on the Tree Protection Plan), all excavation is to be undertaken by hand. Roots revealed shall be cleanly pruned using secateurs to leave the smallest feasible wound. Small, clean pruning wounds require less energy from the tree to heal and reduce the chance of infection by tree pathogens. If roots are revealed with a diameter greater than 25mm, the project arboriculturalist shall be consulted before pruning. IF roots are revealed with a diameter greater than 50mm, the local authority arboricultural office shall be consulted before pruning.

Soft Landscaping within Root Protection Areas

5.25 Soft landscaping within the root protection areas of retained trees shall occur as the final phase of development, when all other construction activities in the vicinity have been completed and it is safe to dismantle the tree protection barriers. The detailed specification for soft landscaping is to be confirmed but will potentially include turfing and tree/shrub planting within root protection areas.

5.26 All planting stock, top soil and other soft landscaping materials shall be stockpiled outside the root protection areas of retained trees. When the tree protection barriers have been dismantled, the extents of the root protection areas shall be made clear to operatives at the site by other means (e.g. ground marker paint or similar). The standard restrictions to works within the construction exclusion zones will still apply during the soft landscaping phase of development.

5.27 Where new turf is to be laid within the root protection areas of retained trees, topsoil will likely need to be imported. The existing soil may be lightly tilled by hand but use of rotavators or plant machinery will be prohibited. A maximum increase of 150mm of topsoil should be introduced to a root protection area to avoid suffocating existing root growth. Care must be taken to prevent soil being piled against tree buttresses or buttress roots.

5.28 When soil or other materials are transported across a root protection area, scaffold board pathways must be used to prevent compaction of the rooting medium. It should be noted that even pedestrian traffic can compact the soil, particularly in wet conditions.

5.29 All planting pits within root protection areas shall be individually hand excavated (no trench planting). Care must be taken to avoid severing or damaging roots with a diameter greater than 25mm.

Aboricultural Supervision

5.30 Arboricultural supervision will be required for the following stages of development:

- No Prior to commencement of works, the project arboriculturalist shall review the routing of new services and provide guidance on best practice for installation where necessary.
- A pre-commencement meeting shall be held between the contractors and the project arboriculturalist. The local authority arboricultural officer shall be given reasonable notice of the pre-commencement meeting so they may also attend. The purpose of the pre-commencement meeting shall be:
    - To clarify the tree protection methodology with the site manager.
    - To sign off that the pre-commencement tree works have been completed as specified in the arboricultural impact assessment, and to agree any requirements for access facilitation pruning which have not been anticipated prior to the meeting.
    - To sign off that the tree protection barriers have been installed in the correct locations and to the agreed specification.
- The project arboriculturalist shall review the detailed specification for the new driveway located within the root protection areas of T5-T6, and sign off that the prescribed methodology is followed during the construction period.
- The project arboriculturalist shall sign off that the prescribed methodology is followed for installing the new crossover onto Queens Road.

5.31 The site manager shall provide a monthly update to the project arboriculturalist including photographic evidence that the tree protection barriers are intact and that the construction exclusion zones have been observed.

5.32 If significant root growth is disturbed during construction activities that are not within the scope of this report, the work shall cease until the project arboriculturalist has been consulted. Roots greater than 25mm in diameter or dense/matted fibrous roots shall be considered significant root growth. It should be remembered that whilst root protection areas are part of industry best practice, tree root growth is influenced by a number of factors and may not conform to expected ideals.

5.33 If at anytime during the construction process, damage is inadvertently caused to a tree, the project arboriculturalist shall be notified to assess the likely implications and to prescribe potential remedial measures to be implemented. Damage can be in the form of chemical or fuel spillage, mechanical damage to either the above ground parts of the tree or the roots, fire or any other unforeseen circumstance.

5.34 The supervising arboriculturalist shall be appointed by the contractor. It will be necessary for the arboriculturalist to report to the local planning authority on the outcome of the site visits as well as any unforeseen tree related issues.

Appendix A
Tree Constraints Plan, Tree Retention Plan and Tree Protection Plan

QUEENS AVENUE

Tarmac

Tall Trees

Note:-Window positions taken on tiled face above

RL 58.37

RL 58.01

Tiled Corner 56.06

C54.61 H56.07

C54.63 H56.07

EL 56.07

CBF Ht. 1.40

CBF Ht. 1.15

Bushes Ht. 3.00

Bushes Ht. 3.00

0.32 Stone Wall Ht. 2.25

0.32 Stone Wall Ht. 2.25

0.32 Stone Wall Ht. 2.25

0.32 Orn Stone Wall Ht. 2.40

0.32 Orn Stone Wall Ht. 1.60

0.32 Brick/Conc Wall Ht. 1.90

Conc

Mostly Grass

Mostly Grass

Bushes and Saplings Ht. 2.00

Bushes and Saplings Ht. 2.00

IRF Ht. 0.60

C.F

CBF Ht. 1.30

Tarmac/Grass F.P

Tarmac/Grass F.P

Tarmac/Grass F.P

B/Pillar Ht. 1.80

WOODEN SHED

SINGLE STOREY BRICK BLDG

2 STOREY BRICK BLDG

The Old Laundry

No. 337

T1

T2

T3

T4

T5

T6

49.67 49.77 49.66 49.68 49.64 49.78 49.63 49.72 50.04 49.90 50.11 49.80 49.83 50.47 49.74 49.89 49.72 49.85 50.05 49.82 49.77 49.84 50.09 49.76 51.08 50.98 51.25 51.14 50.18 51.32 51.24 51.17 51.35 50.69 50.98 51.20 51.17 50.17 49.76 49.80 49.85 49.99 50.68 50.98 51.12 51.18 51.33 51.18 50.39 49.79 50.00 49.89 49.85 49.95 50.11 51.12 51.11 56.34 57.95 51.07 55.19 52.79 55.28 52.83 55.90 52.86 55.89 56.78 53.09

Scale (m)
0 1 2 3 4 5 6 7 8 9 10

Key:

- RPA for CAT B* tree
- RPA for CAT C* tree
- Tree canopy

* Tree categorised in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction - Recommendations*'.

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: 4790/18/A **Rev:** - **Sheet number:** 1 of 1

Site:
335 Queens Road
Maidstone
ME16 0ES

Drawing title: Tree Constraints Plan

Date drawn: 08/02/2018

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

phlorum

Key:

- RPA for CAT B* tree to be retained
- RPA for CAT C* tree to be retained
- Canopy of tree to be retained
- Canopy of CAT C* tree to be removed
- Encroachment into RPA of retained tree

* Tree categorised in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction - Recommendations*'.

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: 4790/18/B **Rev:** 01 **Sheet number:** 1 of 1

Site:
335 Queens Road
Maidstone
ME16 0ES

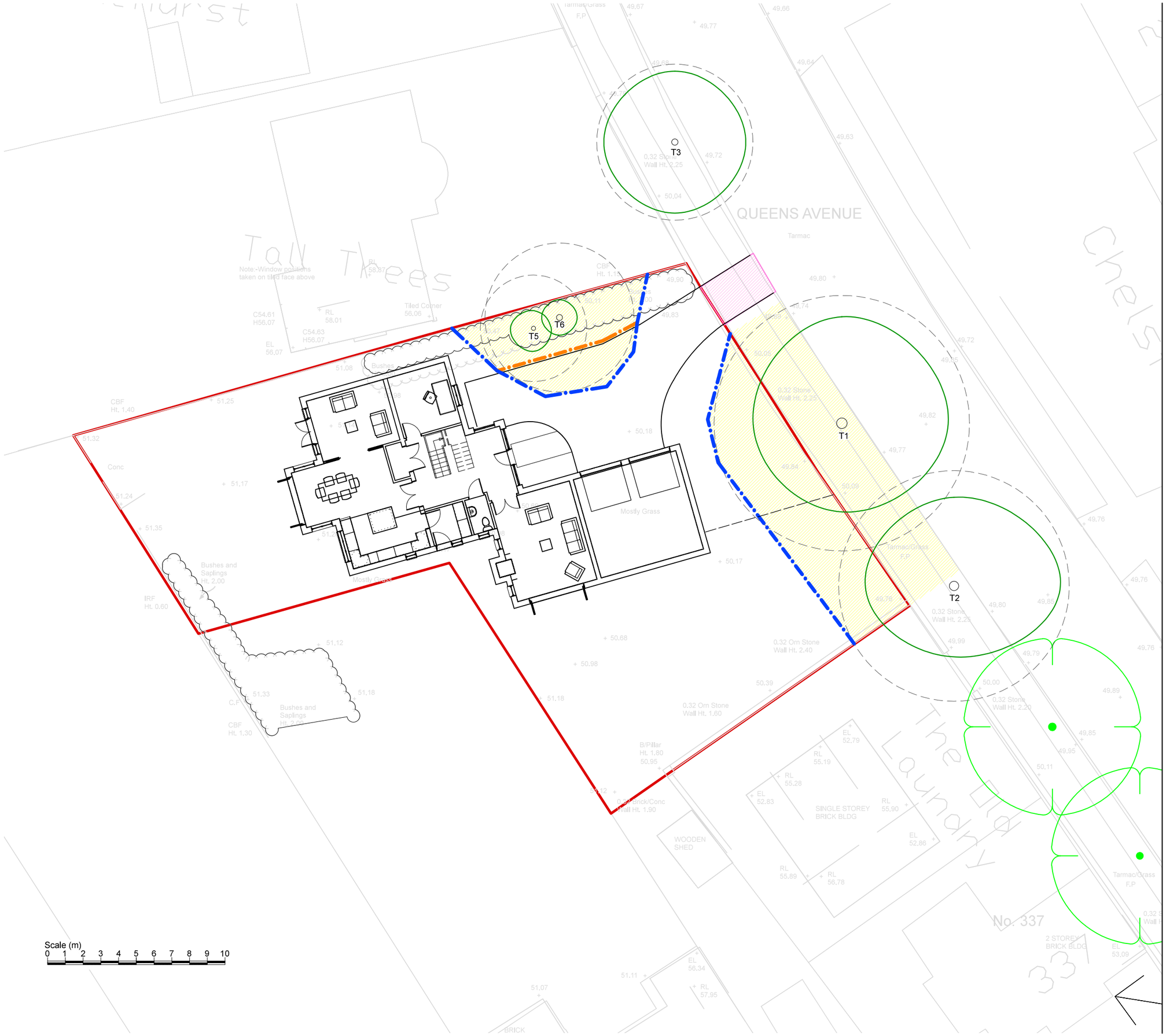
Drawing title: Tree Retention Plan

Date drawn: 12/10/2018

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

phlorum



Key:

- RPA for tree to be retained
- Canopy of tree to be retained
- Tree protection fencing - Primary location
- Tree protection fencing - Secondary location
- Construction exclusion zone
- Excavation to be undertaken using hand tools

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: 4790/18/C **Rev:** 01 **Sheet number:** 1 of 1

Site:
335 Queens Road
Maidstone
ME16 0ES

Drawing title: Tree Protection Plan

Date drawn: 12/10/2018

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

phlorum

Appendix B
Tree Survey Schedule

Site: 335 Queens Road, Maidstone

Survey date: 25/01/2018

Surveyor: Peter Davies

Tree Survey Schedule

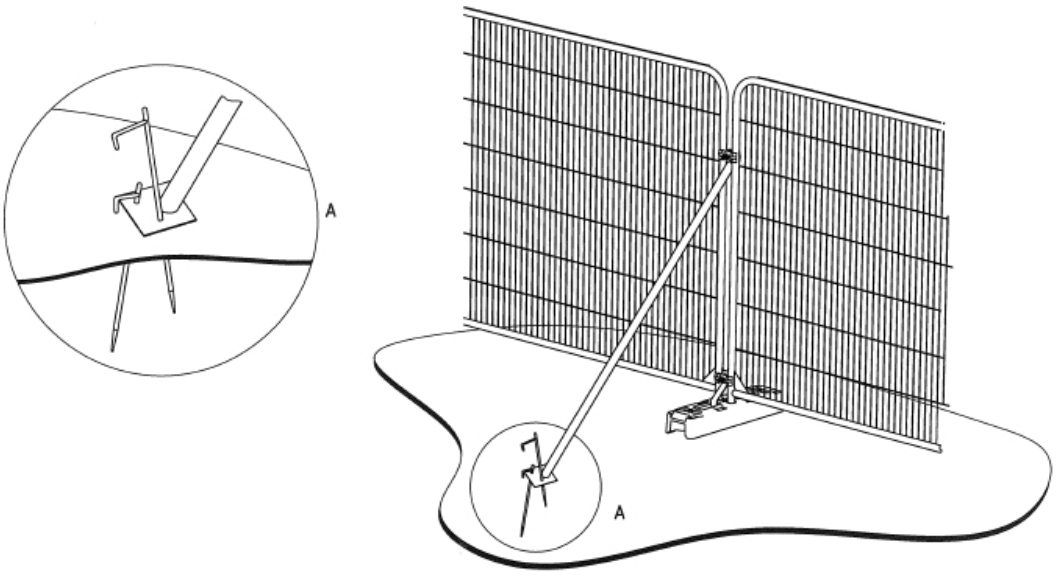
Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendation	Category grading	Root Protection Area (m^2)	Root Protection Radius (m)
T1	Sycamore (Acer pseudoplatanus)	17	600	N: 6 E: 6 S: 5 W: 5	Crown: 5 average Branch: 4 average	Mature	Good	Good	Street tree. Previously crown lifted. Open grown habit. Roots damaging adjacent pavement.	No action required.	B1/2	162.9	7.2
T2	Sycamore (Acer pseudoplatanus)	14	540	N: 5 E: 6 S: 4 W: 5	Crown: 4 west Branch: 2 north	Mature	Good	Good	Street tree. Good overall condition and amenity value. Roots lifting adjacent pavement.	No action required.	B1/2	131.9	6.5
T3	Lime (Tilia x europea)	13	370	N: 4 E: 4 S: 4 W: 4	Crown: 3 west Branch: 3 west	Early mature	Good	Good	Street tree. Previously crown lifted. Good form and future growth potential.	No action required.	B1/2	61.9	4.4
T4	Cypress (Platycladus orientalis spp.)	6	350 est	N: 1 E: 2 S: 2 W: 2	Crown: 0 south Branch: 0 average	Mature	Good	Fair	Located on garden boundary. Historically topped and heavily reduced over neighbours garden.	Fell to ground level and remove stump.	C2	55.4	4.2 (amended on Tree Constraints Plan)
T5	Yew (Taxus baccata)	5	250 est	N: 1 E: 1 S: 2 W: 2	Crown: 0 south Branch: 0 average	Early mature	Good	Fair	Heavily reduced tree on garden boundary with some screening benefit.	Reduce crown 1m clear of new driveway.	C2	28.3	3.0
T6	Cypress (Platycladus orientalis)	7	350 over ivy	N: 1 E: 1 S: 1 W: 1	Crown: 0 average Branch: 0 average	Early mature	Good	Good	Typical example of species. Some screening benefit. Ivy encroaches crown.	Sever ivy from base of tree and fence.	C2	55.4	4.2

Appendix C
Cascade Chart for Tree Quality Assessment

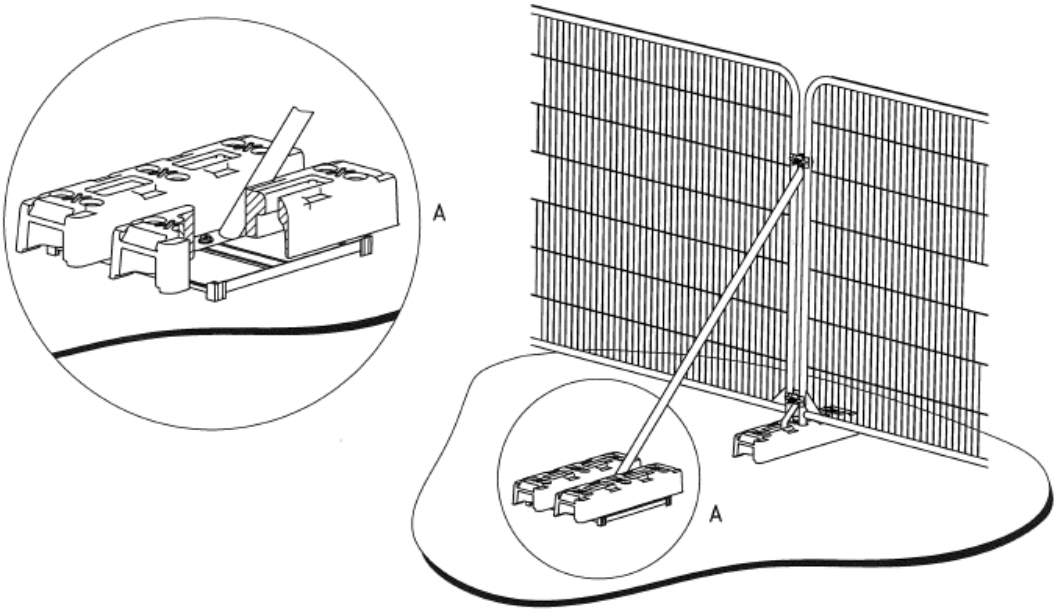
Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of their current land use for longer than 10 years.	• 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 the removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. Note Category U trees can have existing or potential conservation value which it might be desirable to preserve			Red
	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).	Green
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 remedial 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.	Blue
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.	Grey

Appendix D
Tree Protection Fencing Specification



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Appendix E
Example Protective Fencing Signs

PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

TREE PROTECTION AREA

KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

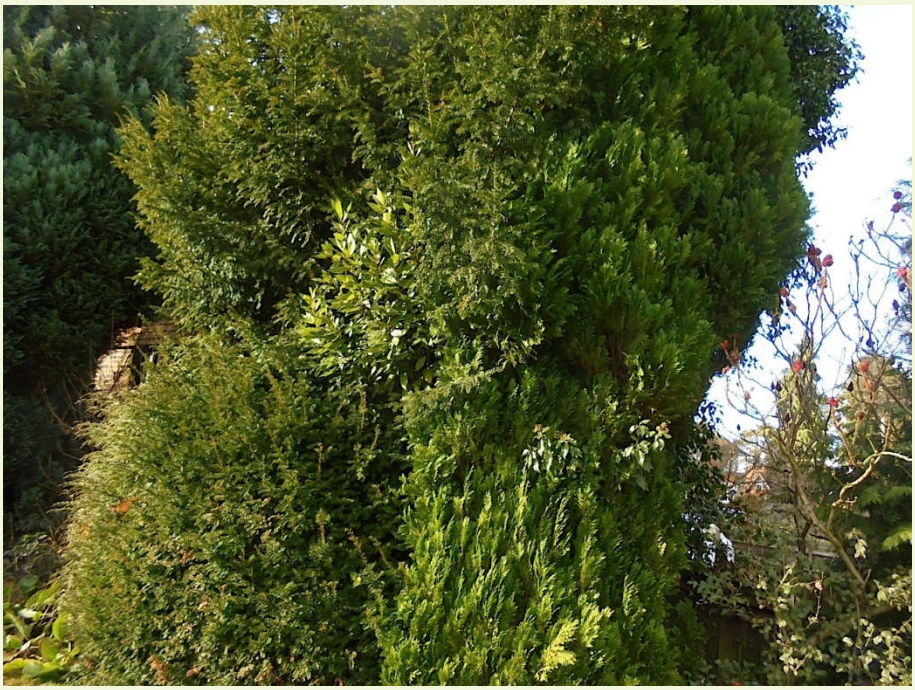
Appendix F
Photographs

Photographs

Photograph 1:
Tree T3

Photograph 2:
Tree T2

Photograph 3:
Trees T5 and T6



Photograph 4:
Tree T4

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