Arboricultural Impact Assessment and Method Statement

Greggs Bakery, Twickenham

28th November 2022

Tyler Grange

TG Report No. 15378_R02a_JJ

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Section 1: Introduction and Brief

1.1. Tyler Grange Group Ltd (TG) have been appointed by London Square Developments Ltd to undertake a BS5837 Tree Quality Survey and development impact assessment / method statement in support of the Full Planning Application for a mixed use redevelopment of the Greggs Bakery site in Twickenham, London Borough of Richmond upon Thames (hereafter 'the site').

1.2. Approval is sought for:

"Demolition of existing buildings (with retention of a single dwelling) and redevelopment of the site to provide up to 116 residential units and 175 sqm commercial floorspace (Use Class E) with associated hard and soft landscaping, car parking and highways works and other associated works"

1.3. This report provides an assessment of the proposals in relation to the surveyed tree stock, and an Arboricultural Method Statement is included at Section 3 of this report to illustrate how the retained trees will be safeguarded during the demolition and construction phases of the proposed development.

1.4. This report has been guided by the recommendations set out within the British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (hereafter BS5837). A full BS5837 tree quality survey of the site was undertaken in October 2022.

Site Description

1.5. The site's red line boundary is shown at **Figure 1.1** below. The site is located in the London Borough of Richmond upon Thames in south west London, within a predominantly residential area. Immediately north of the site is the River Crane, the railway line and a single residential property, and to the south of the site is a car servicing unit on Edwin Road. To the east and west of the site are established terrace housing and some apartment buildings, and immediately to the north west is 'Crane Mews', a collection of commercial studios, many of which have recently been converted into residential.

1.6. There are a range of buildings covering the site, which comprises an area of 1.1ha. The majority of the site is covered by an industrial shed with ancillary development, offices and associated infrastructure, incorporating a number of associated two and three storey commercial buildings across the remainder of the site.

1.7. The existing buildings have reached the end of their life cycle and are unsuitable for alternative industrial uses, and the site is now fully vacant. The site is subsequently deemed surplus to Greggs' requirements and Greggs have moved their operations to a more suitable site due to the long-standing highways, access and amenity issues associated with this location.

1.8. The immediate surrounding area to the site is predominantly residential, with pockets of commercial and light industrial buildings. This includes a substation to the east of the site, as well as some low-rise industrial units. An area immediately to the south of the site includes workshops and car servicing garages.

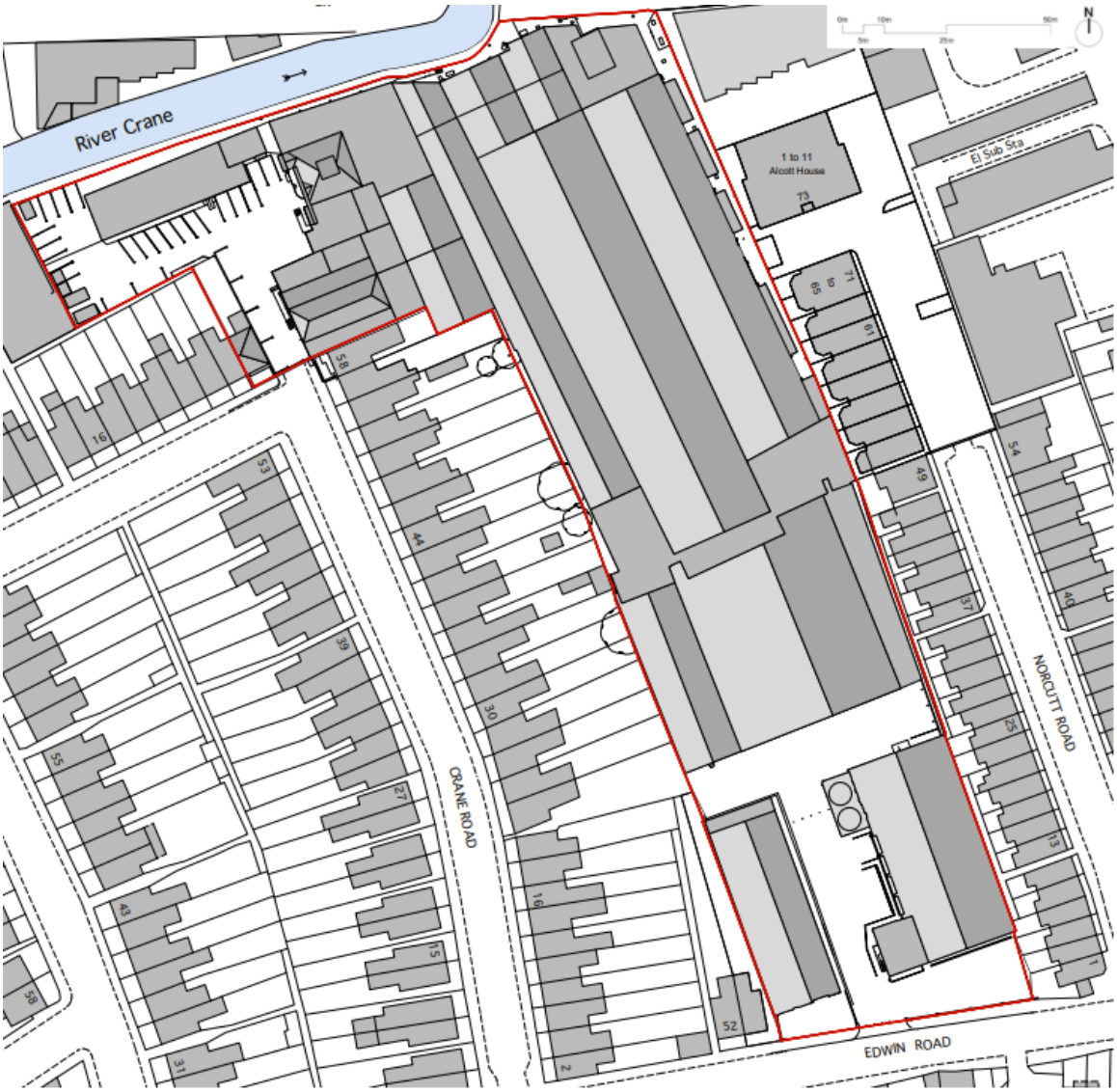


Figure 1.1 – Existing site plan and red line boundary

1.9. On site vegetation is limited to occasional stands of buddleia *Buddleja davidii,* ivy *Hedera helix* and bramble *Rubus fruticosus agg.* over several of the buildings and walls occasional ruderal vegetation in the cracks of the hard standing. Fencing, walls and metal hoarding surrounded the majority of the site beyond which are a number of rear garden trees, ornamental planting and introduced shrubs of largely limited quality.

Planning Policy

1.10. The site falls within the local planning authority of Richmond Borough Council. A summary of the local planning policy context relating to arboricultural matters is provided at **Appendix 2** to the rear of this report for reference.

Tree Preservation Orders (TPOs) and Conservation Areas

1.11. At the time of writing TG are awaiting confirmation from the LPA as to whether any trees on or within influence of the site are covered by a TPO, and to confirm whether the site lies within a Conservation Area.

Ancient Woodland, Veteran and Notable Trees

1.12. There are no veteran, notable nor ancient trees and woodlands present on nor within influence of the site.

Tree Survey Summary

1.13. The baseline tree survey was completed in accordance with BS5837, and the methodology as detailed at **Appendix 1** to the rear of this report. In accordance with the above recommendations, the tree survey included all trees within / in influence of the site and the site boundaries that were over 75mm diameter at breast height (dbh). Measured topographical survey data was used to inform the locations and surrounding context of the sites individual and groups of trees. Any trees not included within the topographical survey have been approximated using measurements taken during the tree survey and further informed by aerial photography.

1.14. A total of 6no. individual trees (T1 – T6) and 7no. groups of trees (G1 – G7) were identified during the tree survey of the site. The survey findings are illustrated on the TCP located at the rear of this report. The TCP shows the distribution of the trees surveyed together with details of their constraints to new development in accordance with BS5837, including:

- Tree Quality Gradings;[1]
- Root Protection Areas (RPA's);[2]
- Tree canopy spreads;[3]
- Tree Shading.[4]

1.15. Findings for each of the tree groups surveyed are detailed in the Tree Survey Schedule (see **Appendix 4**). This provides a tabulated record of the trees surveyed, including reference numbers, species composition, tree dimensions, life stage, physiological and structural condition, and the arboricultural value of each survey entry.

Tree Grading Summary

1.16. The trees surveyed have been categorised using the 'cascade chart for tree quality assessment' (see **Appendix 3**) recommended by the BS5837. Grading subcategories (1, 2 and 3) are intended to reflect the arboricultural, landscape and cultural values, respectively. The grading system allows informed decisions to be made concerning the design and impact of potential development in relation to the arboricultural value of the trees surveyed.

1.17. Surveyed trees are a mix of Low Value (Category C) to Moderate Value / Quality (Category B) stock, with no High Value / Quality (Category A) specimens identified, largely owing to the naturalised and industrial partially derelict context.

1.18. Category B trees are denoted by a 'Blue' tree canopy outline as illustrated on the TCP. This level of classification has often been assigned to trees which attract a higher collective rating than they might as individuals, particularly in terms of their visual appearance where contributing to a cohesive group of trees. Category B trees predominantly include specimens or groups with maturity and / or good future potential, whilst not representing a tree or groups of trees with notable or distinct arboricultural functions.

1.19. Category C trees are trees represent trees of low arboricultural quality and value. Category C trees are denoted by a Grey tree canopy outline as illustrated on the TCP.

1 The value of arboricultural features surveyed in accordance with the methodology set-out in Appendix 3.

2 A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. See further explanation at Appendix 3.

3 Dimensions of the trees crown spread and clearance from ground level. See further explanation at Appendix 3.

4 Shade cast by existing trees which may affect the availability of sunlight and daylight within a new development. See further explanation at Appendix 3.

Section 2: Arboricultural Impact Assessment

2.1. This Arboricultural Impact Assessment has been undertaken to confirm the development impacts in response to the proposed development, as tabulated below. The assessment is informed by a composite of the tree survey findings and the proposed layout which has informed the preparation of a Tree Protection Plan ('**TPP**', ref. 15378/P03a) contained to the rear of this report.

Tree Ref	Commentary
T1	Removal of low value Ash (T1) and cutting back to the site boundary of the stand of ornamental / introduced shrubs (G1) on north western boundary owing to conflicts with Block G. Trees will be replaced via establishment of new site-wide replanting strategy. The removal of T1 and cutting back of G1 relates to on-site trees, only requiring the removal of vegetation which is on-site.
G1 (partial, relating to on-site vegetation only)	

Table 2.1 – Proposed Tree Removals

Works within Root Protection Areas

2.2. Whilst the proposed dwellings have been designed to avoid the RPAs of the retained tree cover, an area of car parking is proposed within the site-side RPA of T6 and areas of existing hard surfacing will be removed across a number of the site-side RPAs. Such areas are within locations already covered by existing hardsurfacing but as a precaution it is advised that ground works within the new T6 car parking area is undertaken by hand, avoiding significant excavations and retaining existing sub-bases in situ. It is advised that the final surfacing implements a cell-web system under a watching brief to avoid any significant ground compaction where the new hard surfacing will traverse the RPAs.

2.3. Where it is required for hard surfacing is to be removed and or re-surfaced within the RPAs of retained trees it is to be undertaken under direct on-site arboricultural supervision, during the landscaping phase of the development.

Tree Canopies

2.4. There are no direct canopy conflicts with the new buildings, and crowns on-site are already historically lifted over existing buildings. It is advised that facilitation pruning is undertaken as needed to maintain site-side lower canopy clearances of 2.5m from finished floor levels to lower branch tips over new garden areas and parking spaces to achieve viable construction room and unobstructed access under canopies for vehicles and pedestrians.

Mitigation Opportunities / New Planting

2.5. The proposed planting across the site includes for an arrangement of new trees, with approximately 68 individual new trees planted and a mix of new shrub and grassland areas. The quantum and quality of such planting, coupled with the limited tree removals needed to facilitate the development provides a demonstrable net-gain in tree numbers and canopy coverage on-site and an enhancement to the site-wide green infrastructure contribution and overall diversity.

2.6. Policies LP 12, LP 15 and LP 16 all require new planting and habitat provision into development sites which enhances the borough's biodiversity and green infrastructure network with Policy LP 16 Trees, Woodlands and Landscape specifically stipulating the need for *"new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits".*

2.7. The level of tree loss proposed is considered to be minor, in so far as the localised western boundary losses are not envisaged to be affecting the principal amenity and character of the area when balanced against the quantum and quality of new planting being delivered on-site. There are no trees of high arboricultural value that will be removed to facilitate the proposed development.

2.8. Given the quantum and quality of the trees being removed, balanced against the proposed landscape response and tree planting specifications submitted with this application, it is deemed that local policy objectives pertaining to trees and associated mitigation are met through the delivery of this development.

Demolition and Construction Stage Mitigation

2.9. Central to the mitigation of effects during construction and operation will be the implementation of the Arboricultural Method Statement (AMS) detailed at Section 3 of this report. The AMS provides a practical strategy for the protection of retained trees for the site preparation and construction stages of the development. This Includes:

- specifications for tree protection barriers and ground protection;
- procedures for any specialist construction techniques within RPAs; and
- a Tree Protection Plan.

Section 3: Arboricultural Method Statement

3.1. The purpose of an Arboricultural Method Statement (AMS) is to safeguard the retained trees on site during the construction process. The following information sets out the methodology and approach for all proposed works that could affect such trees.

3.2. Compliance with this AMS will be a requirement of all relevant contractors associated with the development, including initial ground works and landscaping. Copies of this report will be available for inspection on site and all personnel shall be made aware of the key implications of the AMS, namely to ensure that during the construction phase of the development:

- The site manager and all other personnel are provided with this document;
- All requirements of this Tree Protection Scheme are adhered to;
- The Site Manager and site personnel are updated of any approved changes or variations to this document (approval for alterations must be obtained in writing from the LPA);
- Site personnel must work in accordance with this document at all times, or in accordance with any approved variation; and
- The tree protection measures are left in place until the construction phase of development is completed, except with the written consent of the LPA.

Tree Removals Works

3.3. Vegetation removal for the submission is limited to the losses hatched in Red as shown on the TRRP and as detailed at **Table 2.1** in Section 2 of this report.

3.4. Works to remove these trees must be carried out in accordance with the 'advance works' provisions set out above and in line with BS 3998:2010. Care should be taken during the removal vegetation to minimise damage to retained trees and disturbance to Root Protection Areas (RPAs).

3.5. Tree works must be undertaken in accordance with BS3998:2010 by a competent tree contractor and should avoid the main nesting season for birds between 1st March and 31st August each year. If such timescales are unachievable, the advice of an ecologist will need to be sought to determine any further necessary protective and precautionary working measures to avoid disturbance to nesting birds and other wildlife. Care should also be taken during the removal vegetation to minimise damage to retained trees and disturbance to Root Protection Areas (RPAs).

Tree Protection Plan

3.6. The retained trees must be protected from unnecessary damage during the demolition and construction phases of the developments. Robust tree protection on development sites is of paramount importance if existing vegetation is to be retained successfully. The inevitable stress caused by development near existing trees can, if provision for adequate protection is not made, be a strain that can severely damage the trees or even result in their failure.

3.7. Tree protection measures are illustrated on the **TPP** included to the rear of this report. The procedures and working methods are outlined further below.

General Site Precautions

3.8. The following points must be observed during both advanced works and the construction process:

- No fires will be lit on site;
- Cutting down, uprooting, damaging or otherwise destroying any tree that is proposed for retention is prohibited;
- No access will be permitted inside tree protection / non-intervention areas (unless authorisation is obtained in writing from the LPA or overseen by project arborist). Appropriate signage will also be implemented along the tree protection fencing to highlight to contractors the need for careful working methods and importance of establishing construction exclusion zones;
- No materials, equipment or debris will be stored within the RPA at any time;
- If during construction there are any excessive levels of dust build-up on retained trees then trees must be hosed down immediately with a clean water supply;
- Holes for fence posts for permanent plot boundary fencing immediately adjacent to retained RPAs must be dug by hand, avoiding tree roots. Due to the highly alkaline leachate produced during the curing of wet concrete, concrete should not be poured within the RPA unless an impermeable liner has been installed. Holes must therefore be sheathed to reduce the risk of contamination where concrete is to be implemented;
- All construction or tree management works must be undertaken sensitively and with regard to the RPAs and canopies of adjacent retained trees. Any roots encountered which are smaller than 25mm in diameter can be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm diameter should only be severed following on-site agreement with an arboricultural consultant, as they may be essential to the tree's health and stability;
- Prior to undertaking tree works, all risks associated with the work should be identified by carrying out a site-specific risk assessment. All works must be undertaken in accordance with BS3998:2010 (refer to BS 3998:2010 – Section 7) which provides recommendations for site management, best practice guidance for tree works and safety planning;
- Notice boards, telephone wires or other services must not be attached to any part of retained trees; and
- Materials which will contaminate the soil (e.g. concrete, cement, chemical toilets, diesel oil, vehicle washings etc.) must not be permitted within, or close to RPAs of retained trees unless required in order to implement the permanent plot boundary fencing. To avoid any associated damage or injury occurring to the trees as a direct result of contact with contaminants, works including cement mixing, re-fuelling and tool or machine washing will not be permitted within 20m uphill of any retained tree.

Demolition Phase

3.9. Demolition of structures within what would otherwise be an RPA and adjacent to existing tree canopies will proceed with due caution to avoid unnecessary damage to trees, working systematically away from retained trees wherever possible. The bases and foundations of the existing buildings that to be demolished and within the RPAs of retained trees shall be excavated and removed with care, under the control and supervision of the arboricultural consultant.

3.10. Existing site boundary walls and fencing will remain in situ during demolition works so as to retain the current RPA protection afforded around the periphery of the site.

3.11. Demolition will be undertaken inwards from within the footprint of the existing buildings ("top down, pull back"), working in a controlled manner under supervision so as to safeguard adjoining trees. Where the foundations are alongside trees, the break out will be carried out (under arboricultural supervision) in small sections and the void backfilled and compacted prior to the next section being broken out.

3.12. Where levels of dust build-up on trees occur, it may be necessary to seek the advice of the attending arboricultural consultant on remedial measures, e.g. hose down the tree(s) following any significant accumulation of dust.

3.13. Current ground clearances should be sufficient to accommodate demolition without access pruning.

3.14. Existing hard surfacing across the site-side RPAs acts as an existing ground protection. Where it is required for hard surfacing is to be removed and or re-surfaced within the RPAs of retained trees it is to be undertaken under direct on-site arboricultural supervision, during the landscaping phase of the development.

3.15. The wearing course will be broken up using a hand held pneumatic breaker, hand tools and wheel barrows to break up and remove the surfacing. Where is necessary to remove the sub base this is to be undertaken using a fork to loosen the material and moved using shovels and wheel barrows. There must be no disturbance of the soil beneath. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or top soil will be applied as soon as practicably possible to prevent desiccation.

3.16. Where it is necessary to operate within the immediate vicinity of a tree canopy, it will be done with the utmost caution and under the control of a banks man.

Watching Brief / Site Supervision

3.17. The engagement of an Arborist to perform a 'Watching Brief" can help ensure the successful retention of trees and implementation of an AMS. If deemed a requirement by the LPA as part of a suitably worded planning condition, it is suggested that a Watching Brief entails regular site visits by an appointed Arborist for the duration of the construction phase, with the frequency of visits to be agreed in writing with the LPA. Such visits should involve regular 'drop-in' visits by the appointed Arborist to oversee the tree protection measures and provide general tree advice when needed.

3.18. Site monitoring by a project Arborist would be appropriate during the following work stages in order to oversee:

- Overseeing consented tree removals to avoid erroneous felling;
- Prior to severing any tree roots that may be encountered during ground works adjacent to retained RPAs that are larger than 25mm diameter; and
- Following implementation of BS5837 Tree Protection Fencing to confirm the alignment and specification.

3.19. It is the responsibility of the Site Manager to request (with sufficient notice) the attendance of an Arboricultural Consultant to oversee such work. It is advised that written confirmation of any visits and advice with supporting photographic evidence if appropriate would be issued to the LPA's Arboricultural Officer following the completion of each site monitoring visit.

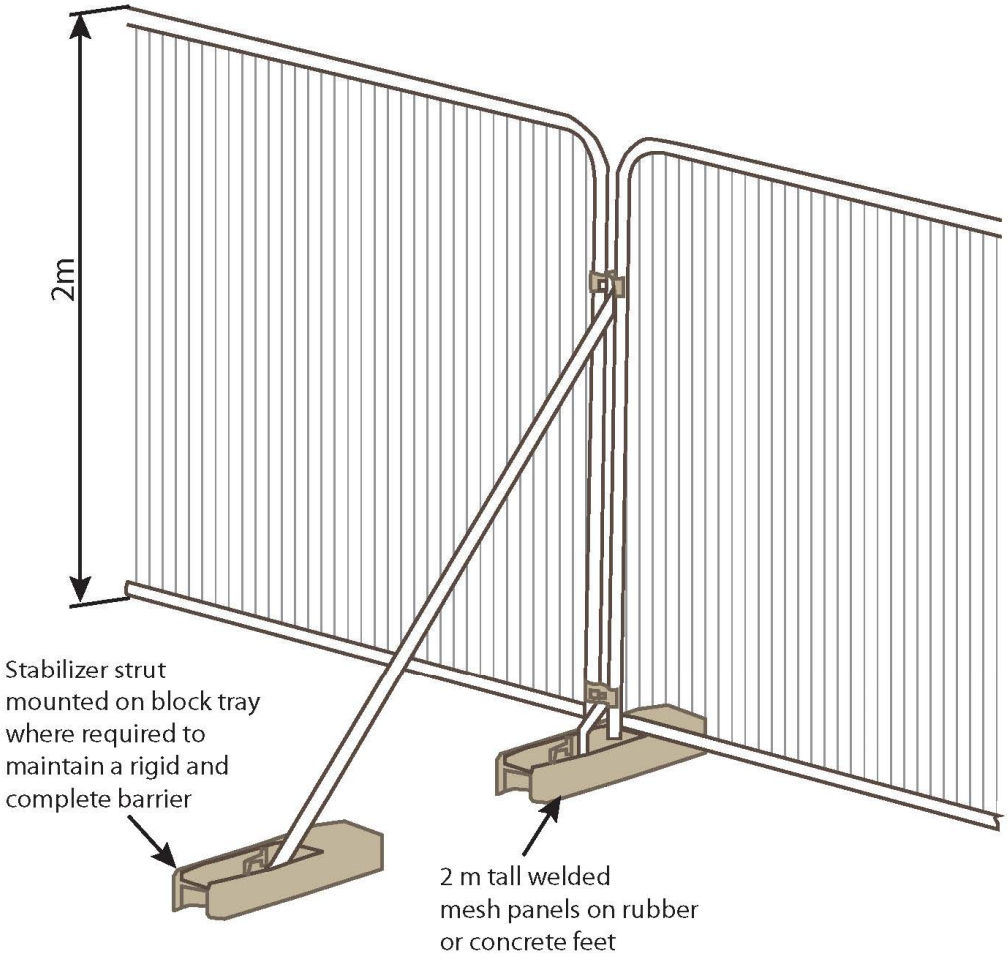
Tree Protection Fencing

3.20. Existing site boundary walls and fencing will remain in situ wherever possible during the site demolition and construction phases as this provides an existing barrier to RPA incursion around the periphery of the site.

3.21. As an added precaution in relation to T6, owing largely to the amount of RPA present within the site associated with this specimen, coupled with the maturity of the tree, additional protective fencing will be erected around T6 in accordance with BS5837, as illustrated with the Magenta line on the TPP contained to the rear of this report. The protective fencing must remain in position for the duration of the site-wide demolition and construction activities. If this fencing is required to be moved to enable access into the RPAs, the fencing will be moved by hand and ground protection boarding installed within any exposed areas of RPA to safeguard the rooting environment of trees no longer being bound by the tree protection fencing.

3.22. Where access into the RPAs is needed the implementation of Grassform (or similar) and Trakmats can provide a gripped and lightweight ground protection solution to safeguard the rooting environment of trees. In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired. Any access across RPAs to undertake tree works must only be undertaken under the guidance of this AMS and overseen by an Arborist to ensure that suitable ground protection is in place.

3.23. The fencing consists of a scaffold framework positioned on rubber block trays as shown on the image overleaf.



3.24. Special attention is essential in maintaining the protective barrier during the construction phase, ensuring that it remains rigid and complete as well as fit for the purpose intended. In order to avoid disturbances to the protective barrier once it is installed, it should be inspected frequently, including during site visits by the project Arborist. Repairs shall be made immediately where required. The protective fencing will remain in position for the duration of the site-wide demolition and construction activities.

3.25. All-weather notices will be attached to the barriers with words such as 'Construction Exclusion Zone – No Access' (see signage examples below).

Protection of Areas of Proposed Landscaping

3.26. Principal areas of proposed planting and structural landscaping can also be safeguarded during the construction phase by secured plastic mesh fencing as this will still offer protection and a visual barrier to any construction works. This will protect proposed planting areas from soil structure damage, ensuring that the ground can be kept in an adequate condition for growth during the construction phase.

3.27. All excavations within the Root Protection Areas shall be undertaken by hand and without reducing current ground levels unless it is agreed in writing with the LPA. At no time is the use of a rotavator permitted within the RPAs of retained tree. Any tree roots discovered will be left in-situ and shall not be cut or otherwise damaged. Where possible, the soil structure within the Root Protection area shall be preserved. No works will be carried out within the RPAs of any trees if the soil moisture is of such a level that soil compaction may be likely. Should the soil become compacted or has poor structure which would hinder the development of the existing trees and plants or any new plantings the arboriculturist should be consulted about soil decompaction techniques.

Boundary Treatments / Scaffolding / Permanent Fencing

3.28. Where the scheme requires the erection of permanent boundary fencing or signage in close proximity to, or within, RPAs the existing ground levels will not be altered. No plant, vehicles or machinery will be allowed in the construction exclusion zone at any time unless suitable approved ground protection is used.

3.29. In the event that scaffolding is needed within the defined RPAs (i.e. within any areas between proposed buildings and established protective fencing) then inter-linked ground protection boards placed on top of a compression-resistant layer consisting of 150 mm depth of woodchip laid onto a geotextile membrane must be implemented to safeguard the rooting environment with RPAs. Alternatively, the implementation of Grassform (or similar) and Trakmats can also provide a gripped and lightweight ground protection solution to safeguard the rooting environment of trees.

3.30. In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

3.31. Ground protection must be installed prior to the commencement of any operations within the RPAs and any excavation works undertaken using hand tools to avoid damage to tree roots. Using a brush will expose roots cleanly before deciding whether it will be necessary to prune. Care must be taken not to damage roots including the roots' bark. Any roots encountered which are smaller than 25mm in diameter can be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm diameter should only be severed following on-site agreement with an arboricultural consultant, as they may be essential to the tree's health and stability.

3.32. Fence posts will be located to avoid tree roots (identified during trial digging by hand) and holes within the RPAs must be lined with an impermeable membrane to reduce the risk of contamination where concrete is to be implemented.

Permeable Surfacing within T6 RPA

3.33. Works to implement the proposed car parking spaces within the RPA of T6, as shown on the **TPP**, will be undertaken within an area of existing hard surfacing. Permeable surfacing is proposed as a means of enhancing the site-side RPAs in terms of aeration and drainage.

3.34. Using a Cellweb Tree Root Protection system, or similar, will require that only the upper wearing course of the existing hard surfacing within the RPA will need to be removed as the Cellweb system does not require excavation into the soil, therefore avoiding damage to any potential underlying tree roots. Construction will need to be undertaken by hand and with care not to damage the adjacent canopies or to disrupt the ground condition within the surrounding RPA.

3.35. Cellweb depths would typically comprise 75m depth for footways and to 200mm depths requiring more substantial vehicular traffic. The cellweb will need to be specified in detail by the supplier's engineers prior to implementation. A separation fabric, using the Treetex T-300 Geotextile (Geosynthetics Ltd), will be laid directly onto the ground as a separation and filtration layer. Treetex T-300 also acts as a pollution control layer to protect the soils beneath. Angular 40/20mm stone will then be laid as a sub-base to allow for variable levels and soil conditions within the site. The Cellweb Tree Root Protection system will then be laid, (strictly as per the manufacturer's specification) and filled with the same stone as infill to provide a load-bearing and permeable structure suitable for pedestrian and vehicular movements.

Amendments

3.36. Issues can arise on development Sites which require amendments to the previously agreed tree protection details. Any amendments to the AMS will be discussed with the Arboricultural Consultant and agreed in writing

with the LPA prior to being implemented. Copies of paperwork relating to any amendments shall be attached to the site AMS to provide a definitive record of what has been approved.

Procedures for Incidents

3.37. If any breach of the approved tree protection measures occurs (including any accidental / unauthorised damage to the limbs, roots or trunk of trees, the discharge / spillage of toxins and waste within the RPAs, or unauthorised breaching / failure to implement a tree protection barrier or construction exclusion zone or prescribed arboriculturally sensitive working methodology):

- The site manager must be informed immediately;
- The Local Planning Authority Tree officer (or other Planning Officer) and project Arborist;
- Swift action must be taken to halt the breach and prevent any further breach; and
- All preventative action and details of agreed remedial works must be recorded by the project Arborist and reported to the LPA.

Appendix 1: Methodology, Constraints, Mapping and Limitations

Field Work

A1.1. In accordance BS5837, the tree survey included all trees within / in influence of the site and the site boundaries that were over 75mm diameter at breast height (1.5m).

A1.2. Measured topographical survey data (supplied by others) was used to inform tree locations their surrounding context. Any trees not identified on the topographical survey are prefixed with (*) and their locations have been approximated using measurements during the tree survey and further informed by aerial photography where required.

A1.3. The trees surveyed were visually inspected from ground level only. No invasive investigations or climbing inspections were necessary to confirm visual or audible signs of defect or debility and no tissue or soil samples were undertaken. For further clarification please refer to the tree survey explanatory notes in below.

Tree Numbers

'T' prefixes have been used to identify individual trees and commence with 'T1'.

'G' prefixes have been used to identify groups of trees.

'H' prefixes have been used to identify hedgerows.

'W' prefixes have been used to identify woodlands.

Species

A1.4. Species are listed by their common name, both in the schedule and in the report text.

Height and Stem Diameter

A1.5. The stem diameter is measured at 1.5m above ground level and given in millimetres (mm). Tree heights are measured in metres (m) using a clinometer where access and land typography allowed. In instances where access to tree's stem and height measurements were not possible, the dimensions have been estimated by eye.

Crown Spread and Height of Crown Clearance

A1.6. Radial crown spread is measured in metres and is listed for each of the four cardinal points where access has been possible to obtain a measurement. Where access was not possible to measure the spread of the canopy, such distances have been estimated by eye or informed by aerial photography.

A1.7. The measured canopy shapes have been plotted on the **Tree Constraints Plan (TCP)** at the four cardinal points. For groups of trees, the extent of the canopy has been measured as an average across the group and plotted using the topographical survey mapping. In some instances, Tyler Grange will use aerial photography to inform the canopy spread of larger tree groups and woodlands where topographical data is limited for such features.

A1.8. The distance between the ground level and the first significant branch or radial tree crown, whichever is the lower, has been measured in metres.

Age Class

A1.9. The age of each tree is defined as follows:

Young - within the first third of reaching full maturity;

Semi-Mature - within the second third of reaching full maturity;

Early-Mature - within the last third of reaching full maturity;

Mature - specimen at full maturity; and

Veteran – tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Physiological and Structural Condition

A1.10. The physiological or structural condition of each tree is defined as either; good, fair, poor or dead. For each tree, where appropriate, notes on the structural integrity are provided on form, taper, forking habit, storm damage, decay, fungi, pests, etc.

A1.11. An assessment of a tree's physiological condition is defined as:

Good – fully functioning biological system showing expectant vitality for the species i.e. normal bud growth, leaf size, crown density and wound closure.

Fair – fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure.

Poor – a biological system with limited functionality showing clear physiological decline, disease or significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure.

Dead – tree observed to fully dead with no living parts.

A1.12. An assessment of a tree's structural condition is defined as:

Good – no significant structural defects.

Fair – structural defects which could be alleviated through remedial tree surgery or arboricultural management practices.

Poor – structural defects which cannot be alleviated through tree surgery or arboricultural management practices.

Tree Quality Gradings

A1.13. The value of trees has been assessed in accordance with the BS5837 Cascade Chart for Tree Quality Assessment (See **Appendix 3**). Grading subcategories (1, 2 and 3) reflect arboricultural, landscape and cultural values respectively.

Root Protection Areas

A1.14. The **Tree Constraints Plan** shows the approximate extent of Root Protection Areas (RPAs). The RPAs have been plotted and calculated in accordance with the methodology set out in Appendices C and D of BS5837, using the tree stem diameter dimensions obtained during the site visit.

A1.15. Plotted RPAs serve as a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

A1.16. Where pre-existing site conditions or other factors indicate that rooting may occur asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution observed on-site. Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:

a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);

b) topography and drainage;

c) the soil type and structure; and

d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

A1.17. The plotted RPAs have therefore informed the design of the proposed development where possible. While developing within RPAs should be avoided, special working methods can be adopted to alleviate the RPA disturbance for cases where the development is considered necessary and unavoidable.

Tree Canopies and Shading

A1.18. The distribution of tree canopy cover on and within influence of the site is illustrated on the **TCP**. Canopies have been plotted at cardinal points for individual and groups of trees. The Tree Survey Schedule included at **Appendix 4** to the rear of this report lists the vertical clearance from site ground level to significant tree branching of individual trees. This measurement informs the impacts of accessibility and development beneath tree canopies.

A1.19. The principal tree shadow constraints are shown on the **TCP** and have been plotted in accordance with BS5837 using the current height of surveyed trees. The indicative shade cast by existing surveyed trees signifies the area within which the amenity interests of shading, available daylight and the proximity of trees to any future site uses may be impacted upon should a tree be retained as part of development.

A1.20. Where shading is unavoidable, the potential adverse impact of shadowing should also be reviewed on balance with the positive aspects of retaining a degree of canopy shade. BS5837:2012 (para. 5.3.4, a) NOTE 1) states that "shading can be desirable to reduce glare or excessive solar heating, or to provide comfort during hot weather. The combination of shading, wind speed/turbulence reduction and evapotranspiration effects of trees can be utilised in conjunction with the design of buildings and spaces to provide local microclimatic benefits".

Limitations

A1.21. The comments made are based on observable factors present at the time of inspection. Although the health and stability of trees in their current context is an integral part of their suitability for retention, it must be understood that this report is not a tree risk assessment and should not be construed as such. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment.

A1.22. No tree can be considered entirely safe, given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the site. An assessment of the potential influence of trees upon existing buildings or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effects of incremental root or branch growth, are specifically excluded from this report.

Un-assessable Risks

A1.23. Any alteration to the application site or development proposals could change the current circumstances and may invalidate this report and any recommendations made.

A1.24. The Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence to disturb nesting birds or recklessly endanger a bat or its roost. Bats are also a European protected species and are additionally protected under the Conservation (Habitats & c) Regulations 1994 and 2010 (as amended). The survey findings, constraints, opportunities and design or mitigation recommendations included within that report must be read alongside this document.

A1.25. A lack of recommended work does not imply that a tree does not pose an unacceptable level of risk and likewise, it should not be implied that a tree will present an acceptable level of risk following the completion of any recommended work.

Appendix 2: Arboricultural Planning Policy

A2.1 Under the Town and Country Planning Act 1990 (as amended) the requirement to consider trees as part of development is a material planning consideration and will be taken into account in the determination of planning applications. Arboricultural planning policy that relates to the site is set out by policy at a National and Local level.

National Planning Policy

A2.2 The consideration for existing trees and woodlands in relation to planning and new development is set out within Sections 12 and 15 of the NPPF published in July 2021.

A2.3 Section 12, paragraph 131 states that *"Trees make an important contribution to the character and* quality *of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users."*

A2.4 Section 15, paragraph 174 states that *"Planning policies and decisions should contribute to and* enhance *the natural and local environment by: Subsection B; "recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland"*

A2.5 Section 15, paragraph 180 states that *"When determining planning applications, local planning authorities should apply the following principles:" Subsection C; "that development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists".*

The London Plan, The Spatial Development Strategy for Greater London, March 2021

A2.6 Policy G1: Green Infrastructure states that:

- *London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.*
- *Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way as part of a network consistent with Part A.*
- *Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:*
    - *identify key green infrastructure assets, their function and their potential function.*

- *identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.*

- *Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network should prepare green infrastructure strategies that integrate objectives relating to open space provision, biodiversity conservation, flood management, health and wellbeing, sport and recreation."*

A2.7 Policy G7: Trees and woodlands states that:

- *London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.*

- *In their Development Plans, boroughs should:*

- *protect 'veteran' trees and ancient woodland where these are not already part of a protected site.*

- *identify opportunities for tree planting in strategic locations.*

A2.8 *Development proposals should ensure that, wherever possible, existing trees of value are retained. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.*

Local Planning Policy

The London Borough of Richmond upon Thames Local Plan (July 2018)

A2.9 The Plan sets out policies and guidance for the development of the borough until July 2033 or until it is superseded.

A2.10 Policy LP 12: Green Infrastructure requires new development to incorporate "green infrastructure features, which make a positive contribution to the wider green infrastructure network."

A2.11 Policy LP 15: Biodiversity states that *"The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats",* adding that this will be achieved by *"incorporating and creating new habitats or biodiversity features, including trees, into development sites".*

A2.12 Policy LP 16 Trees, Woodlands and Landscape states that *"The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits",* adding that the Council will *"resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland."*

A2.13 The policy adds that the Council will *"resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees", "require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT)", "require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate"* and *"require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations)".*

Appendix 3: Cascade Chart for Tree Quality Assessment

Appendix 3: Cascade Chart for Tree Quality Assessment

TREES FOR REMOVAL				
Category and Definition	**Criteria**			**Identification on Plan**
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	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 (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).			**DARK RED**
	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)			
TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	**Criteria - Subcategories**			**Identification on Plan**
	Mainly Arboricultural Values	Mainly Landscape Values	Mainly Cultural Values, including Conservation	
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)	**LIGHT GREEN**

TREES TO BE CONSIDERED FOR RETENTION				
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 benefits.	**MID 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 temporary/transient landscape benefit.	Trees with no material conservation or other cultural value.	**GREY**

Appendix 4: Tree Survey Schedule

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Notes	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T1	Ash	7m	est. 120+100	1.50	3.00	2.00	3.00	3.00	Early Mature	Good	Good	C1	Off-site. Stem and base obscured. Garden tree, bifurated with dense middle to upper canopy. Lifted over site-side. Hard-surfacing across site-side RPA. Growing behind brick boundary wall.	**1.9m**	11
T2	Western Red Cedar	13m	est. 300	3.00	3.00	3.00	3.00	4.00	Early Mature	Fair	Fair	C1	Off-site beyond western site boundary. Stem and base obscured. Garden tree, lifted over site-side with canopy deadwood. Hard-surfacing across site-side RPA, canopy conflicts with on-site building. Growing behind concrete boundary wall.	**3.6m**	41
T3	Silver Birch	12m	est. 300	3.00	5.00	4.00	5.00	4.00	Mature	Good	Fair	C1	Off-site beyond western site boundary. Stem and base obscured. Garden tree, lifted over site-side with canopy deadwood. Hard-surfacing across site-side RPA, canopy conflicts with on-site buildings to north and west of stem. Growing behind concrete boundary wall.	**3.6m**	41
T4	Robinia	12m	est. 400	4.00	4.00	4.00	4.00	1.00	Mature	Good	Good	B.1	Off-site garden tree beyond western site boundary, viewed from afar. Appears in sound health with dense and rounded crown.	**4.8m**	72
T5	Palm	5m	est. 5x75	3.00	3.00	3.00	3.00	0.00	Early Mature	Good	Good	C1	Ornamental garden planting beyond eastern site boundary. No significant issues observed.	**2m**	13
T6	Cherry	10m	est. 500	6.00	7.00	5.00	7.00	2.50	Fully Mature	Good	Fair	B.1	Off-site beyond northern site boundary security fencing. Stem and base obscured. Forked at 2.5m. Lifted over site-side, growing over on-site building. Hard-surfacing across site-side RPA.	**6m**	113
G1	Holly, Pyracanthra, Virginia Creeper, Berchemia, Rose	2 - 4m	est. 50 - 75	0.50	0.50	0.50	0.50	0.00	Young to Early Mature	Good	Fair	C2	Off-site. Bases obscured. Ornamental shrubs and garden trees, lifted over site-side. Hard-surfacing across site-side RPA. Growing behind brick boundary wall.	**0.9m**	_
G2	Bay Laurel	2 - 4m	est. 50 - 75	0.50	0.50	0.50	0.50	0.00	Young to Early Mature	Good	Good	C2	Off-site garden trees beyond north western site boundary, viewed from afar. Appears in sound health with dense and rounded crowns.	**0.9m**	_
G3	Lawsons Cypress, Cedar, Sycamore	10 - 12m	to 280	2.00	2.00	2.00	2.00	0.00	Young to Early Mature	Fair	Fair	C2	Off-site beyond western site boundary. 4no specimens, bases obscured. Garden trees, lifted over site-side with canopy deadwood. Hard-surfacing across site-side RPA, canopy conflicts with on-site building. Growing behind concrete boundary wall.	**to 3.36m**	_

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Notes	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
G4	Western Red Cedar	4 - 6m	to 140	2.00	2.00	2.00	2.00	3.00	Early Mature	Fair	Fair	C2	Off-site beyond western site boundary. 8no specimens, bases obscured. Garden trees, topped with canopy deadwood across lower canopies. Hard-surfacing across site-side RPA, canopy conflicts with on-site building. Growing behind concrete boundary wall.	**to 1.68m**	_
G5	Western Red Cedar	10 - 12m	to 280	2.00	2.00	2.00	2.00	5.00	Early Mature	Fair	Fair	C2	Off-site beyond western site boundary. 5no specimens, bases obscured. Garden trees, with canopy deadwood across lower canopies. Hard-surfacing across site-side RPA, canopy conflicts with on-site building. Growing behind concrete boundary wall.	**to 3.36m**	_
G6	Elder, Buddleja, Bramble	4 - 6m	50 - 75	0.50	0.50	0.50	0.50	0.00	Young	Fair	Fair	C2	Self-set trees and brambles beyond northern site boundary. Limited age. Unmanaged.	**0.9m**	_
G7	Cherry, Bramble, Buddleja, Elder, Willow	4 - 6m	50 - 75	1.00	1.00	1.00	1.00	0.00	Young	Fair	Fair	C2	Self-set trees and brambles beyond northern site boundary. Limited age. Unmanaged.	**0.9m**	_

Plans

15378/P01: Tree Constraints Plan

15378/P03a: Tree Protection Plan

Category B - Trees of Moderate Quality and Value

Category C - Trees of Low Quality and Value

Tree Shading Constraints

Root Protection Areas (RPAs)

Site-side RPAs covered by existing hard surfacing

*Denotes trees and groups not identified on topographical survey. Locations approximated using measurements taken on site.

0 25m

North

Tyler Grange

Head Office: Marsden Estate, Rendcomb, Cirencester, Gloucestershire GL7 7EX

E:info@tylergrange.co.uk
W: www.tylergrange.co.uk

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Tree Constraints Plan

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Revision
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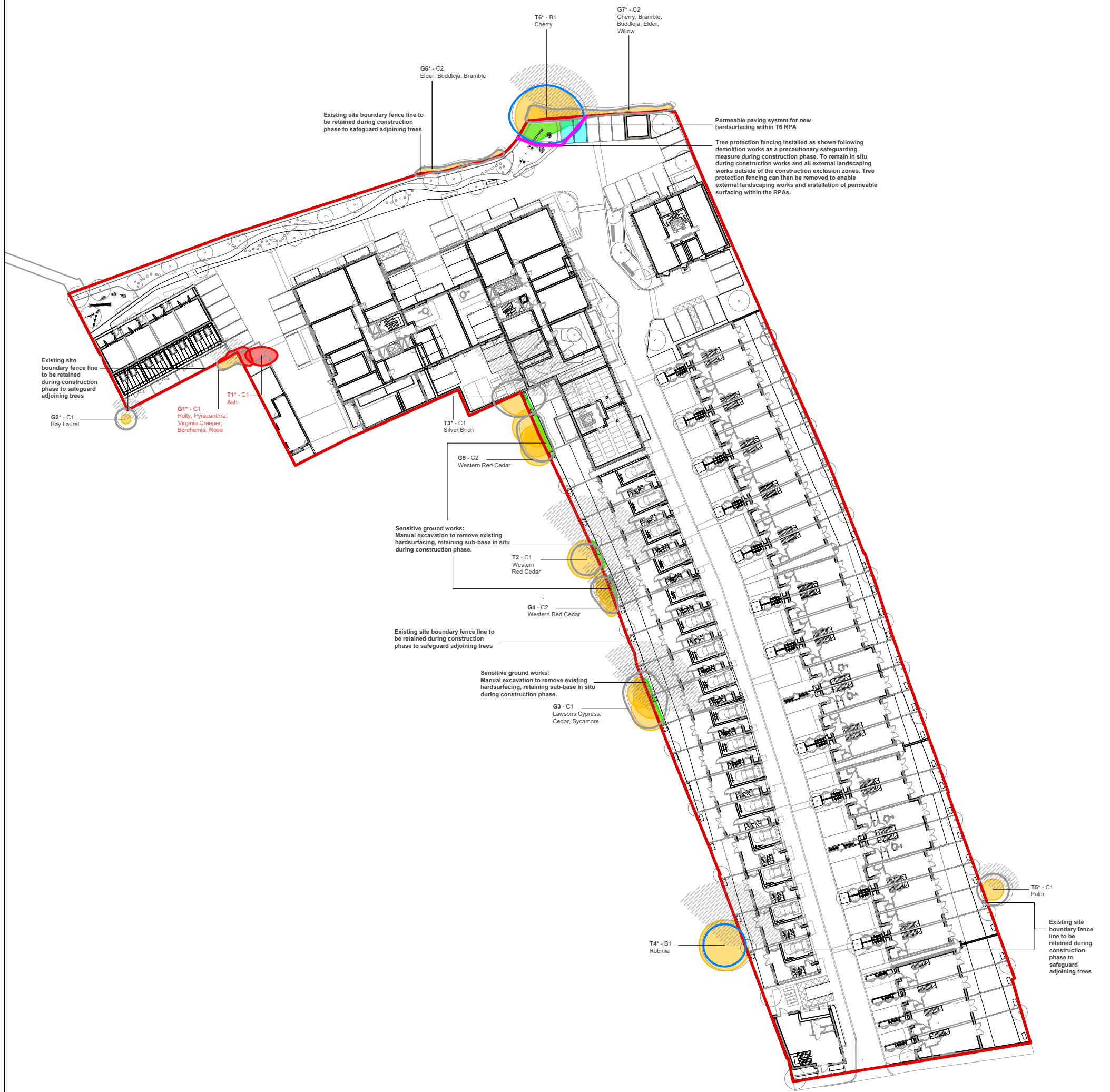

Category B - Trees of Moderate Quality and Value

Category C - Trees of Low Quality and Value

Tree Shading Constraints

Root Protection Areas (RPAs)

Sensitive ground works / manual excavation

Proposed tree removal

Tree protection fencing

Permeable surfacing

0 25m

North

Tyler Grange

Head Office: Marsden Estate, Rendcomb, Cirencester, Gloucestershire GL7 7EX

E:info@tylergrange.co.uk
W: www.tylergrange.co.uk

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