31 Beech Hill Avenue
EN4 0LU

Phase II Arboricultural Impact Assessment (AIA)
(Ref. 101 577)

Date: 25/01/2021

Revised 9th October 2023
See revised AIA reporting (yellow-highlighted) with the revised Tree Protection Plan and appended Arboricultural Method Statement.

Ref: 101 874

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APPENDICES

For Local Planning Authorities that have previously seen our standard report format are directed to Sections 4-7 that contain the key relevant information for this planning application.

1.0 INSTRUCTIONS & TERMS OF REFERENCE

1.1 INSTRUCTIONS

Arbol Euro Consulting Ltd. is instructed to assess the on and off-site trees in regard to the proposed development. See section 6.1.2. We visited the site in mid-July 2020 to carry out the tree survey. In regards to this revised development we have not been instructed to re-visit the site.

NB This report does not seek to authorise any tree works (see Section 4.1).

Please be advised that this is a Development Control – and not a Building Control – focused document. In regard to the latter, this deals with foundation depth and design in relation to trees using NHBC/Zurich national guidance. For advice, consult with the local council Building Control Officer or an approved NHBC inspector in order to gain Full Plans Approval or a Completion Certificate. The latter are governed by the Building Act 1984 and Building Regulations 2010. As such the above Building Control issues are outside the remit of a Consulting Arborist.

Our tree reporting is in-line with BS:5837 (2012) and our tree survey assessments are consistent with the LANTRA professional tree inspector criteria. However, please be advised* that this AIA does not necessarily provide any guarantees that the associated Local Planning Authority will agree with the opinion of the Consulting Arborist or grant planning consent based on the content and findings of this AIA report.

* As per our Terms & Conditions.

1.2 PHASE 1, 2 & 3: ARBORICULTURAL IMPLICATION ASSESSMENTS (AIA) IN CONTEXT

1.2.1 Phase 1 (AIA1). The initial stage for trees within the development process is a survey of those trees that should be retained and those that may/should be removed. Retention trees are allocated Root Protection Areas (RPAs) that are then detailed on a Tree Constraints Plan (TCP). The RPAs provide for sufficient rooting (soil) volume to ensure that trees are successfully retained during and after the completed development. The TCP represents Phase 1 of an Arboricultural Implications Assessment (AIA1). It indicates a notional development footprint for any given site but moreover, it ***may affect the value of land*** earmarked for development. The AIA1 is ***only*** a baseline survey. It is not intended to represent, in isolation, the supporting information for an LPA* application: to obtain full planning permission.

* Local Planning Authority

1.2.2 Phase 2 (AIA2). The next stage is for 'site layout master planners' to factor the tree constraints into draft layout proposals. This draft is then referred to the consulting Arborist for further implication assessment, to arrive at a 'best fit' scheme, which achieves site proposal viability whilst allowing for the retention of appropriate trees. This layout review represents Phase 2 of an Arboricultural Implications Assessment (AIA2). Once it has been agreed, the consulting Arborist can then prepare a supporting report to accompany the planning application. This report should demonstrate that the trees have been properly considered such that the site layout is defensible in arboricultural terms, both at the application stage and also, if necessary, at Appeal. As the proposal develops, the AIA2 also involves the consulting Arborist working as part of the development team to secure discharge of any initial (frequently pre-commencement) tree related LPA planning conditions. These will need to be formally discharged to avoid any breach of Condition and/or enforcement action.

1.2.3 Phase 3 (AIA3). All the effort put into the pre-application phases (AIA12) to protect retention trees is likely to fail without effective site supervision. Arboricultural Implications Assessment (AIA3) covers the ***on-site project implementation***, including arranging (LPA) approved tree

removal/ pruning, overseeing the installation of tree protection fencing, ground protection and any special engineering works through to periodic reporting on the retention of tree protection measures. Many if not all of the latter are usually specified as LPA planning conditions that need to be formally discharged. All personnel associated with the construction process must be familiar with the specified Tree Protection Plans (TPP) and Arboricultural Method Statements (AMS) that affect the site. The TPP and AMS should be retained on site at all times and they should be included in the site's Project Management Plan.

1.2.4 Phases 1–3 are in line with *BS 5837; 'Trees in relation to design, demolition and construction - Recommendations'* (2012).

1.3 TREES & BUILDING SUBSIDENCE/HEAVE ISSUES

Assessing the potential influence of trees upon load-bearing soils beneath existing and proposed structures, resulting from water abstraction by trees on shrinkable soils, was not included in the contract brief and is not, therefore, considered in any detail in this report. **Arbol EuroConsulting** cannot be held responsible for damage arising from soil shrinkage or heave issues related to the retention or removal of trees on site.

1.4 TREE SAFETY MATTERS AND TREE RISK ASSESSMENT

The BS:5837 tree survey is carried out in sufficient detail to gather data for and to inform the current project. Our appraisal of the structural integrity of trees on the site is of a preliminary nature and sufficient only to inform the current project. The tree assessment is carried out from ground level – as is appropriate for this type of survey - without invasive investigation. The disclosure of hidden tree defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious visual defects that are significant in relation to the existing and proposed land use.
Lastly and to further clarify, this BS:5837 survey does not constitute a full *Visual Tree Assessment* (= TRAM* Level 2 - *Basis Assessment*) that would ordinarily be carried out for Tree Risk Assessment reporting. In effect, this BS:5837 survey equates to a TRAM Level 1 *Limited Visual Assessment.*

* "Tree Risk Assessment Manual" (2nd edition) Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly (2017) International Society of Arboriculture

1.5 SITE OBSERVATIONS

This report has been based on my site observations and in light of my experience. This along with my qualifications are appended to this report.

1.6 CAVEATS

The author does not have formal qualifications in the areas of structural engineering or law. However, making comment on such matters from an arboricultural perspective is both within the normal scope of our instructions and also within the range of the author's experience. Notwithstanding this, specialist professional advice should be sought to clarify/confirm any observations on engineering or legal matters that this report may contain.

2.0 INTRODUCTION

2.1 THE ASSESSMENT METHODOLGY

The British Standard BS:5837 '*Trees in relation to design, demolition, construction - Recommendations*' (2012) provides "guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees…….with structures". The Standard recommends that trees with categories A-C (where A is the highest quality) are a material consideration in the development process. Such trees may then become a constraint for a planning proposal. Category U trees are those that will not be expected to exist for long enough to justify their consideration in the planning process (i.e. no more than 10 years). Tree categories are used with the number 1, 2, or 3 to signify whether the category was made based on arboricultural, landscape or cultural (including conservation) values respectively. The tree categories are shown on plan by colour-coding:

Category A (green colour-coded): Good examples of their species with an estimated life expectancy of at least 40 years.
Category B (blue colour-coded): Not suitable for an 'A' category due to impaired condition or a tree lacking special 'A' qualities: with an estimated life expectancy of at least 20 years.
Category C (grey colour-coded): Unremarkable trees of very limited merit or with a significant impaired condition not warranting an 'A' or 'B' category: with an estimated life expectancy of at least 10 years. See young trees below.
Category U (red colour-coded): Structurally defect /dead tree.

Reasonably young trees below 150mm stem diameter would normally be given a C category (if they satisfy the retention quality criteria). However, as they are small they could be replaced/transplanted and as such they should not be regarded as a significant constraint on a development.

2.2 ARBORICURAL IMPACT ASSESSMENT (AIA)

We have considered - with access permitting for 3rd party trees - the following BS:5837 (2012) recommendations:

1. Tree Categories (Quality Assessment).
2. Crown Spread measured to the four cardinal compass points for single specimens only.
3. Tree Constraints.
4. Tree retention & protection

N.B. Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades along with any conclusions or tree management recommendations remain valid for a period of 12 months.

The specific tree report is documented in Section 7 of this report.

3.0 GENERAL DATA

3.1 GENERAL

The three phases of an Arboricultural Implication Assessment were outlined in Section 1.1.1-1.1.4. In addition, during the development process for retention trees, there may be three and even four constraints to consider - Construction Exclusion Zone (CEZs):

- CEZ 1: Root Protection Area (see 3.1.1).
- CEZ 2: Tree Crown Protection (see 3.1.2).
- CEZ 3: Tree Dominance (see 3.1.3).
- CEZ 4: New Tree Planting Zone (see 3.1.4).

The above CEZ's are explained further below.

3.1.1 CEZ 1: ROOT PROTECTION AREA (RPA)

The RPA, calculated in m^2, should be protected before and during any demolition/construction works. This ensures the effective retention of trees by preventing physical damage to (a) roots and (b) their rooting environment (typical problems - soil compaction; soil level changes and soil capping that can impede gaseous exchange to living roots*). The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve. With the AIA1, the RPA is only shown indicatively on the preliminary Tree Constraints Plan (TCP), as its shape may be subject to amendment as the design progresses.
During the AIA2, the derived radial measure is converted by the consulting Arborist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s).
The means of protecting the RPA will include the installation of Tree Protection Fencing prior to the start of any demolition or construction work on site, the prohibition of various harmful

activities within the RPA (e.g. mechanical excavation, soil stripping & trenching, fire lighting, materials storage and creating excessive sealed surfacing), and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

* Roots must have oxygen for survival, growth and effective functioning.

3.1.2 CEZ 2: TREE CROWN PROTECTION ZONE

This is the area above ground occupied by the tree crown (branches) and considers the required demolition/construction working space necessary for the development. The possibility of an acceptable quantum of pruning may be considered: subject to Council permission/consent (see Section 4.1.1).

Arising from the above, the means of protecting CEZ 2 is likely to include providing an adequate separation distance between retention trees and new buildings. This will relate to the CEZ 3: below.

3.1.3 CEZ 3: TREE DOMINANCE ZONE

This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and the safety apprehension by the site owner/occupier. This area is assessed by considering the height and spread of the tree (now and in the future) relative to the proposed buildings, cross-referenced with the intended end-use. As such, what is assessed is the likely psychological effect of the tree(s) on the end-user.

The purpose of identifying CEZ 3 is to protect trees from post-development pressure by the site's end-users, who may, if resentful of the trees, seek to procure excessive pruning treatments (i.e. the bad practice of topping & lopping) or even to have them removed. This is a common LPA concern, which may lead to application withdrawals, refusals and/or dismissed Appeals.

The means of protecting CEZ 3 is likely to include optimising the site layout and room type (especially in relation to new residential dwellings), such that any adverse impacts of trees are reduced to an acceptable minimum. The key principle is to ensure adequate separation distances between trees and new buildings: notably with habitable space & primary windows.

3.1.4 CEZ 4: NEW PLANTING ZONE

In some cases, it may be appropriate to identify and protect areas (see soil conservation below) intended for new landscape planting, which can fail to establish if the soil has been heavily compacted or contaminated during the demolition/construction process. The means of protecting CEZ 4 will either be by fencing prior to the start of construction/demolition works or by pre-planting soil remediation once construction has finished. Topsoil protection in areas destined for new planting is frequently an economic measure, saving on soil structure remediation and tree (failure) replacement costs.
NB Soil conservation is the process of protecting soil from degradation within a defined area. The physical, chemical and biological properties of a native soil can take hundreds of years to develop but can be destroyed in minutes (i.e. by demolition/construction traffic). Soil conservation is the most effective way to protect soil for future tree planting.

4.0 STATUTORY CONTROLS

4.1 PLANNING LEGISLATION (TREES)

4.1.1 STATUTORY TREE PROTECTION

Trees can be protected in law – via Tree Preservation Orders (TPOs) or by virtue of them growing in a Conservation Area (CA) – by the Government's Town & Country Planning Act 1990. (the Act). Trees may also be protected by Planning Conditions. If any of these apply, written

LPA permission/consent is required before protected trees can be pruned or felled*. Contravention of the Act may carry a fine of up to £20,000 and a criminal record.

* Exceptions include those trees that are dead/hazardous or those that are causing an actionable nuisance to a third-party. In any event, evidence must be provided to defend the removal of such trees.

4.1.2 TREES ON/OFF SITE

We are advised by the client that the site is not within a Conservation Area and that none of the on-site trees are subject to any Tree Preservation Orders. However, if required and before any tree works are carried out, this should be double-checked with the Local Planning Authority (LPA). If any statutory (tree) protection is confirmed then advance LPA permission/consent would be required.

4.2 WILDLIFE LEGISLATION

In general, wild birds and bats are protected by the Wildlife and Countryside Act 1981 (schedule 1 & 5) as amended by the Countryside and Rights of Way Act 2000 and statutory instruments. It is not a defence to claim that harm was accidental/unintentional in the course of carrying out tree works (i.e. the negligence of *reckless* harm can now be applied). There is therefore an onus on the operative to check for the presence bird of nesting/bat roosts (e.g. holes, limb cracks/splits or cavities) prior to carrying out any tree work. The bird nesting season is considered to run from March to August, but due to the vagaries of climate change, nesting birds can be found outside of this core period. Bats and their roosts are afforded the highest protection in UK Law.

5.0 WILDLIFE HABITATS

A cursory assessment of wildlife habitat values of trees and hedgerows on the site was carried out during the survey. No protected or exceptional habitats were identified and details were not recorded. However, trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September. We have not been made aware of the presence of roosting bats and have not identified any obvious signs of roost sites. However, this does not mean that roost sites are absent.

6.0 No. 31 Beech Hill Avenue EN4 0LU: TREE REPORT (to be read in conjunction with the appended Tree Protection Plan and Tree Survey)

6.1 THE PROPERTY AND THE DEVELOPMENT PROPOSAL

6.1.1 Site description: A large detached residential property - with a detached garage and rear swimming pool - that is accessed off the road via an L-shaped gravel driveway. There are a number of trees/hedging principally around the northern, southern and western boundaries. The frontage of the site is largely open with an access footpath and two large amenity lawn areas. See trees in section 6.2.

6.1.2 The proposal: (Resubmission of planning ref: 21/00552/FUL) Redevelopment of the site by the erection of 2 x detached 2-storey dwelling houses with rear balconies, accommodation in roof space, additional side extension to accommodate a garage and gym for Plot 2, together with associated parking and crossover.

The location and detail of the proposed development and the positioning and numbering of the trees can be found plotted on the Tree Protection Plan at Appendix 2. **NB** The original of this plan was produced in colour – a monochrome copy should not be relied upon.

6.2 TREES ON-SITE

We first visited site in mid-July 2020 to carry out the tree survey and noted that some trees had been removed. Importantly, we alerted the client to a third-party hazard tree (ash T26) at No. 33 Beech Hill Avenue that required removal. We are advised that this tree has since been removed.

6.2.1 Front: The only tree of note amongst the mainly damson trees T7-T16 is the damson T10 that has dominant B-grade crown form. The remaining trees that also include a pear, thorn and plum have either low-grade suppressed or compromised crown form. **NB** The U-grade plum T14 and damson T15 have large dead crown sections and will require removal in the next 1-2 years.

6.2.2 Rear: The cypress and beech hedging H1 and H2 provide some useful neighbour screening. Largely due to their close planting/grouping T17-T20 (mix of cypress, hawthorn and willow) have suppressed crowns, they do however also provide some useful screening. The isolated semi-mature ash T21 on the rear boundary has the potential to develop into a fine tree and consequently merits a B-grade. In contrast, the ash T22 and maple T23 have average crown form.

6.3 TREES OFF-SITE

6.3.1 Street (public-realm) trees: In total there are six trees (T1-T6): a mix of maple, thorn and silver birch. These are all low-grade trees due to unbalanced, suppressed/declining crowns and as such they only merit C-grades. T2 is a newly established tree.

6.3.2 No. 33 Beech Hill Avenue: As mentioned above, the hazard ash T26 has now been removed by its third-party owners. The remaining trees T24, T25, T27 and T28 have low-grade suppressed crown form.

6.4 IMPACT PROPOSAL ON TREES **(to be read in conjunction with the Tree Protection Plan - TPP - at Appendix 2 and the Arboricultural Method Statement at Appendix 3)**

6.4.1 Underground Utilities: Locations of any **proposed/renewed** underground services were not identified on the provided plans: any such services **would *not*** be sited within the Root Protection Area (RPA) of any trees* without prior discussion and approval from the LPA and/or a Consulting Arborist. See section 6.5. We recommend that this issue is dealt with within the site's (pending) Construction Management Plan.

* The public realm trees T1 and T2 including T25, T27 and T28

6.4.2 CEZ 1: Root Protection Areas (RPAs)

6.4.2.1 Footprint of the Proposed Build

There would be no RPA incursion with the footprint of the proposed property including the driveway. However, to facilitate development (construction space and installation of the site hoarding) the low-grade shrub/tree S1 and T7 would have to be removed (see Note 2 on the appended TPP). Additionally, and again for construction space, any crown overhang into site from T24 would have to be pruned back to the site boundary with also the removal of the end section of H2 (see Note 3 on the appended TPP).

6.4.2.2 Construction Activity

As set out below, extensive tree protection measures would be required. Firstly, to ensure these are installed in a timely manner, we would recommend that a pre-commencement site meeting is held with the on-site contractors (see section 1 within the appended Arb. Method Statement [AMS]). Secondly, there should be adequate site supervision (see section 6.7.2 below and section 7.0 within the appended AMS). Thirdly, active random site monitoring by a Consulting Arborist throughout the development process would be strongly recommended.

Tree Protection Barriers (TPBs): As per the appended Tree Protection Plan, if *temporary* staked, clamped and braced TPBs are installed, to establish the three Construction Exclusion Zones (CEZ) at the front and the rear, this would afford adequate RPA protection for all retention/off-site trees. On no account would these CEZs be used for the storage/preparation of any construction/building materials. If required a TPB panel could be left unclamped for grass cutting. See the measured brown-arrow (alongside T25-T28) as an example TPB distance guide and the Heras fencing specification in Appendix 4. **NB** In regard to the temporary scaffolding incorporating planked ground protection (see TSGP below) the RPA construction site incursion from T18 and T24 would be fenced-off during the demolition: see blue TPBs on the appended TPP. After the demolition, these blue additional TPB sections would then be removed to allow for the TSGP installation. See Note 5 on the appended TPP.

Tree Protection Box (TPB): To protect both the trunks and tree pits of the public-realm street trees T1 and T2 a *temporary* braced heavy-duty ply-board TPB would be installed. See example below. **NB I** To be installed prior to any demolition and/or construction **NB II** We strongly recommend that this boarded protection extends up to the first low branch/branches to (a) fully protect the trunk from any physical (machinery) damage during the demolition/construction and (b) prevent this boarded box from becoming a receptacle for litter and other unwanted objects. **NB II** It is likely that a Highways Licence would be needed for installation of the TPB. Additionally, site hoarding would also be erected along the boundary that crosses the site: a brown line as marked up on the appended TPP.

Photo to show *example* braced heavy-duty ply-board (trunk & tree pit protection) sheeting Tree Protection Box that would be used around T1 and T2

Temporary Scaffolding incorporating planked Ground Protection (TSGP)
Firstly, see the blue additional TPB sections above. After the demolition, the TSGP would be installed over and protect the RPA incursion into the 'build site' from T18 and T24: see the BS:5837 (2012) drawing specification below (with platform options).
NB I On no account - referring to leakage - would there be any mixing/preparation of noxious substances (e.g. wet mortar or concrete notably with a cement mixer) on this ground protection planking: unless prepared on top of thick heavy-duty polythene sheeting.

NB II Any diesel would be carried in a portable bunded bowser and petrol would be stored in a ventilated tool box.

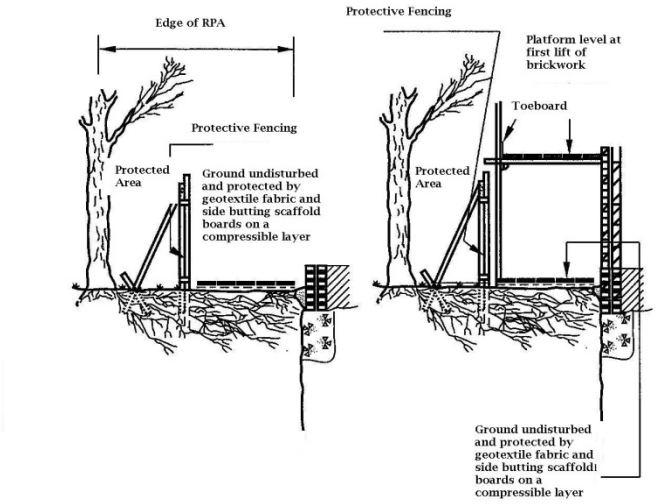

Figure 3 - Scaffolding within the RPA

Temporary Storage of Machinery and/or Materials: There would be adequate on-site space. See notation on the appended TPP. On no account would cement or other noxious substances (e.g. diesel or solvents) be mixed/prepared or stored within the footway or road surrounding the frontage street-trees T1 and T2. Such substances can seep down into the underlying (RPA) soil and harm/result in tree root mortality. See note 4 on the appended Tree Protection Plan. **NB** The detached garage would be constructed after the main build had been completed (during the build its location would be used for Temporary Storage of Construction Material/Equipment).

Temporary Site Office: There would be adequate space on site frontage.

6.4.3 CEZ 2: Tree Crown Protection Zones

Construction Vehicle Site Access (access facilitation pruning)

As this is an open site there would be no such issue with this proposal.

6.4.4 CEZ 3: Tree Dominance Zones

With no large close-proximity trees there would be no CEZ 3 issues with this proposal.

6.4.5 CEZ 4: New Tree Planting Zone

The LPA will likely request/condition a Landscape Scheme for the proposed build. We have been asked to recommend tree species notably for the site frontage:

- To replace T7: 1 x sweet gum
- Flanking each side of T7: 2 x silver birch (see notation on the appended TPP)

See principals of tree planting and aftercare in the appended Method Statement: Appendix MS(i).

6.5 UNDERGROUND UTILITIES

Service runs would enter properties using junctions from existing services where at all possible and located outside retention tree RPA*s. New or replacement underground services should not be installed within RPA*s without prior consultation with the LPA: including importantly the street trees T1-T3, **NB** If incursion into the RPAs is unavoidable then services routing should be achieved by either thrust boring or hand excavation. For more information regarding underground services, reference should be made to the National Joint Utilities Group (NJUG) Publication Volume 4: Issue 1. *'Guidelines for the Planning, Installation & Maintenance of Utility Apparatus in Proximity to Trees' 2007.*

* RPAs of T1, T2, T25, T27 and T28

6.6 TREE PROTECTION DURING CONSTRUCTION

6.6.1 Tree Protection: The protection of retention trees is ***paramount*** to the granting of planning permission, the discharge of tree protection Planning Conditions, the design of the development and the future health, stability and success of the trees. It is widely recognised that mature trees add value to both land and property values.

6.6.2 The Root Protection Area (RPA): RPAs around retention trees should be maintained by the erection of a *temporary* tree protection barrier (TPB) as described at Appendix 4 to this report. The position and extent for the TPB will normally concur with the radius/squared area of the RPA. This staked-off area shall be known as the **Construction Exclusion Zone** (CEZ). The integrity of the TPB to protect **CEZs** should be maintained for the duration of the entire development works. The **CEZs** are marked-up on the appended Tree Protection Plan.

6.7 ARBORICULTURAL METHOD STATEMENT

6.7.1 Purpose & Use

In consideration of the above issues, we have included an Arboricultural Method Statement (AMS) at Appendix 3, which details working methods in relation to trees. This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these should be used to form part of their contract.

6.7.2 Site Supervision

An individual – ideally the Site Agent - must be nominated to be responsible for all arboricultural matters on site (specific responsibilities are set out in the appended Arboricultural Method Statement). This person must:

- be present on site for the majority of the time;
- be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout the build;
- have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
- be responsible for ensuring that all site operatives are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
- make immediate contact with the designated Consulting Arborist (contact number listed on the appended AMS) in the event of any tree related problems occurring, whether actual or potential.

6.7.3 AMS Adoption

If conflicts between any part of a tree and the build arise in the course of the development these can – and should be – resolved quickly and at little costs if a qualified and experienced Consulting Arborist is contacted promptly. Lack of such care will likely lead to the decline and even death of affected trees: often with legal ramifications. The loss or damage to retention trees can spoil design, affect site sale ability and reflects badly on the construction and design personnel involved. Conversely, trees that have received careful handling during construction add considerably to the appeal and value of the finished development.

7.0 CONCLUSIONS

7.1 DEVELOPMENT PROPOSAL & POTENTIAL IMPACT ON TREES

7.1.1 The development proposal would require the removal of the low-grade S1 and T7. See recommended three new trees in section 7.1.6. Additionally, the crown overhang into site from T24 would have to be pruned back to the site boundary with the also the removal of the end section of H2. See wildlife legislation/considerations in section 4.2 and 8.4.

7.1.2 As plotted on the Tree Protection Plan at Appendix 2, with the implementation (in a timely manner) of the tree protection measures specified in this report there should be no CEZ 1 (RPA) impact on the retention trees.

7.1.3 There would be no CEZ 2 or CEZ 3 issues with this application.

7.1.4 See Arboricultural Method Statement at Appendix 3. Active random site monitoring by a Consulting Arborist throughout the development process is strongly recommended (AIA3: Phase 3).

7.1.5 Site Supervision Responsibilities: This would be an essential element during the proposed build to ensure effect tree protection. See section 7.0 in the appended in the Arboricultural Method Statement.

7.1.6 CEZ 4 New hedge/tree planting: We have been asked to recommend tree species notably for the site frontage:

- To replace T7: 1 x sweet gum
- Flanking each side of T7: 2 x silver birch

8.0 RECOMMENDATIONS

8.1 EXECUTION OF CONTRACT

It is recommended that the Architect specifies in writing to the building contractor that tree care conditions apply to the execution of the contract. Lack of care frequently results in the damage, decline and eventual death of trees. This can adversely affect design aims & site sale-ability, and reflects poorly on the contractors and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of finished developments.

8.2 PROPOSED REVISIONS TO THE SCHEME

We advise that all proposed revisions in respect of external layout, orientation of primary windows, location of underground services, external surfacing and/or landscaping; having implications for retention trees should be referred to us for review.

8.3 WILDLIFE CONSIDERATIONS

Trees and hedgerows should be carefully inspected for birds' nests prior to tree pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young birds have fledged, unless however, the trees pose an immediate danger (advice should be sought from the relevant wildlife authorities). All personnel working with or in trees should be vigilant and mindful of the possible presence of roosting bats. A competent ecologist should investigate any indication that trees on the site are used as bat roosts. See section 4.2.

8.4 OUTDOOR AMENITY SPACE

Design of outdoor amenity space should fully consider the locations of existing trees to be retained. Alterations of soil levels and cultivation of ground beneath trees (the RPA) can result in significant root loss or damage and altered drainage patterns, which could lead to a decline in tree health and possible (tree) structural instability. Removal of existing herbaceous vegetation, by hand or appropriate herbicide application* and addition of a thin layer (100-150mm) of sandy-loam topsoil will facilitate the establishment of grass or other vegetation beneath the canopies of existing trees, whilst avoiding unnecessary root disturbance.

* The selection & application of herbicides must be undertaken by a competent person in accordance with the Control of Substances Hazardous to Health (COSHH) regulations. Inappropriate use of herbicides can damage/ kill leaves, shoots, branches or whole trees.

8.4.1 In order to avoid mower/strimmer damage to the base on tree trunks (i.e. bark stripping), grass seed/turf ***should not*** be laid within a 0.5m (min.) radius around trees.

8.4.2 With respect to any soft landscaping works, there should only be limited soil cultivation works (max. depth 150mm) within the retention tree RPAs.

9.0 OCCUPIERS LIABILITY ACTS

Attention is drawn to the provisions of the Occupiers liability Acts (England & Wales - 1957 & 1984), which place a responsibility upon landowners to ensure the safety of others entering their land whether by invitation or permission: inclusive of trespassers. There is a special responsibility to ensure the safety of children, who may be unaware of hazards. Annual inspections of trees by a competent person, or following storm events, together with implementation of any remedial tree work recommendations, should ensure compliance with the legislation regarding the above legislation.

10.0 REFERENCES

- *BS 5837; 2012 'Trees in relation to design, demolition and construction - Recommendations'* British Standards Institute, London
- *BS 3998; 2010 'Tree Work Recommendations'* British Standards Institute, London
- *'NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees' 2007* National Joint Utilities Group (NJUG) Volume No. 4: No. 1.
- Arboricultural Practice Note 12; 2007 – AAIS
- *'Availability of Sunshine' BRE - CP 75/75*
- *'Tree Roots in the Built Environment'* 2006 - Dept. for Communities & Local Government (DCLG).
- *'Up by Roots: healthy soils & trees in the built environment'* 2008 James Urban, International Society of Arboriculture.
- *'Arboriculture';* 1999 3rd edition R. Harris, J. Clarke & N. Matheny. Prentice Hall.
- *'Soil Management for Urban Trees'* 2014 International Society of Arboriculture, Best Management Practice series.

Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MRSB.
Technical Director: Arbol EuroConsulting Ltd.
Royal Society of Biology **Chartered Biologist**
International Society of Arboriculture **Certified Arborist** (ID: UI-1287A*)*
LANTRA Approved **Professional Tree Inspector** (Ref: HO00178227 504187)
International Society of Arboriculture **Qualified Tree Risk Assessor** (ID: 2148)

No. 1 Landford Close Rickmansworth WD3 1 NG
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APPENDIX 1

TREE SURVEY SCHEDULE
(see appended at end of report)
4 pages

APPENDIX 2

TREE CONSTRAINT AND PROTECTION PLANS

(see appended to the report)

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon.

APPENDIX 3

ARBORICULTURAL METHOD STATEMENT
6 pages

ARBORICULTURAL METHOD STATEMENT (AMS)

Site: 31 Beech Hill Avenue EN4 0LU

To be read in conjunction with the Tree Report sections 6-8 and Tree Protection Plan at Appendix 2.

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon.

This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these must be used to form part of their contract.

Consulting Arborist contact details: Russell Ball – mob. No. 078844 26671

SEQUENCE OF WORKS

From commencement of the subject development, the following methodology will be implemented in the manner and sequence described:

1. Pre-commencement site meeting.
2. Arboricultural pruning and/or removal works: with written LPA permission for any protected trees.
3. Erect *temporary* ***staked*** Tree Protection Barriers (TPBs) to establish the fenced-off Construction Exclusion Zones (CEZ): ***before*** any demolition and/or construction works begin on-site.
4. Install *temporary* scaffolding incorporating planked ground protection (TSGP): ***before*** any demolition/construction works begin on-site.
5. Route underground services: not within the RPAs of any retention trees.
6. Main construction works.
7. Site Supervision Responsibilities
8. Remove TPBs and TSGP.
9. New Tree/hedging.

1. PRE- COMMENCEMENT SITE MEETING

To outline on-site working methods in relation to trees prior to any demolition and/or construction activity, a site meeting of the following shall take place:

- Client
- Architect/Planning Consultant
- Structural Engineer
- Main Contractor
- LPA Arboricultural Officer (*optional)*
- Consulting Arborist
- Site Agent

2. ARBORICULTURAL PRUNING AND/OR REMOVAL WORKS

1. Before the erection of the *temporary* Tree Protection Barriers (see below) remove trees: S1 and T7. Additionally, prune back any crown overhang into site from T24 to the site boundary and also remove the end section of H2. We are advised by the client that the site is not within a Conservation Area and that none of the on-site trees are subject to any Tree Preservation Orders. However, before any tree works are carried out, this should be double-checked with the LPA. If any statutory (tree) protection is confirmed then advance LPA permission/consent will be required.
2. **Wildlife Legislation:** In general, wild birds and bats are protected by the Wildlife and Countryside Act 1981 (schedule 1 & 5) as amended by the Countryside and Rights of Way Act 2000 and statutory instruments. It is not a defence to claim that harm was accidental/unintentional in the course of carrying out tree works (i.e. the negligence of *reckless* harm can now be applied). There is therefore an onus on the operative to check for the presence bird of nesting/bat roosts (e.g. holes, limb cracks/splits or cavities) prior to carrying out work. The bird nesting season is considered to run from March to August, but due to the vagaries of climate change, nesting birds can be found outside of this core period. Bats and their roosts are afforded the highest protection in UK Law.

3. All possible efforts must be made to prevent damage to retained trees including potential root incursion or compaction caused by vehicle access. If required, temporary ground protection should be used to achieve the latter.
4. All arboricultural pruning works must conform to the recommendations of BS 3998 (2010) 'Recommendations for Tree Work'.
5. No fires or chip piling to occur within 5m of the drip line of any tree canopy or within 10m of any tree trunk: whichever is further.
6. All operatives must be equipped with and use personal protective equipment (PPE) in accordance with current Health & Safety Executive current directives and industry codes of practice.
7. Performance of all arboricultural operations and use of equipment must be in accordance with current Health & Safety Executive current directives and industry codes of practice.

3. ERECT *TEMPORARY STAKED* AND BRACED TREE PROTECTION BARRIERS (TPBs)

1. Following completion of the tree works and prior to demolition and/or construction, the main contractor will erect the staked and braced TPBs as per the appended Tree Protection Plan (TPP) and as detailed in the *'Tree Protection Barrier Specification'* at Appendix 4 of this report. See also Appendix MS(ii) below. This will establish the fenced-off **Construction Exclusion Zones**: CEZs (marked up on the TPP). Site hoarding shall also be erected along the boundary that crosses the site: a brown line as marked up on the appended TPP.
2. In regard to the temporary scaffolding incorporating planked ground protection (see section 4.0) the RPA construction site incursion from T18 and T24 shall be fenced-off during the demolition: see blue TPBs on the appended TPP. After the demolition, these blue additional TPB sections shall be removed to allow for the TSGP installation. See Note 5 on the appended TPP.
3. On no account shall these CEZs be used for the storage/preparation of any construction/building materials.
4. Prior to commencement of any site demolition, construction, preparation, excavation or material deliveries, the Consulting Arborist will inspect installation of the TPB and the CEZs. Any damage occurring to the TPB during the demolition or construction phase will be made good by the main contractor.
5. **Tree Protection Box (TPB)**: To protect both the trunks and tree pits of the public-realm street trees T1 and T2 a *temporary* braced heavy-duty ply-board TPB would be installed. See example below. **NB I** To be installed prior to any demolition and/or construction **NB II** We strongly recommend that this boarded protection extends up to the first low branch/branches to (a) fully protect the trunk from any physical (machinery) damage during the demolition/construction and (b) prevent this boarded box from becoming a receptacle for litter and other unwanted objects. **NB II** It is likely that a Highways Licence would be needed for installation of the TPB.

Photo to show *example* braced heavy-duty ply-board (trunk & tree pit protection) sheeting Tree Protection Box that would be used around T1 and T2

4. INSTALL *TEMPORARY* SCAFFOLDING WITH PLAKNED GROUND PROTECTION (TSGP)

1. After the demolition and prior to construction the TSGP shall be installed over and protect the RPA incursion into the 'build site' from T18 and T24: see the BS:5837 (2012) drawing specification overleaf (with platform options).

NB I On no account - referring to leakage - would there be any mixing/preparation of noxious substances (e.g. wet mortar or concrete notably with a cement mixer) on this ground protection planking: unless prepared on top of thick heavy-duty polythene sheeting.
NB II Any diesel would be carried in a portable bunded bowser and petrol would be stored in a ventilated tool box.

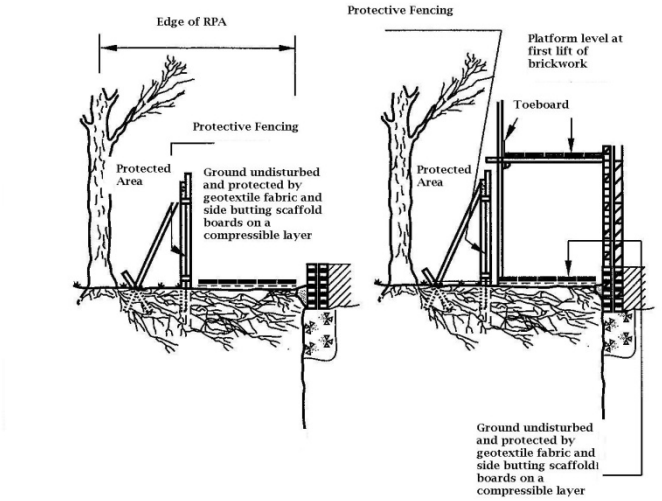


Figure 3 - Scaffolding within the RPA

5. ROUTE UNDERGROUND SERVICES

1. Service runs will enter the properties using junctions from existing services where at all possible. Replacement/new underground services shall not be installed within RPA*s without prior consultation with the LPA and if RPA incursion is unavoidable then services routing should be achieved by either thrust boring or hand excavation. For more information regarding underground services, reference should be made to the National Joint Utilities Group (NJUG) Publication Volume 4: Issue 1. *'Guidelines for the Planning, Installation & Maintenance of Utility Apparatus in Proximity to Trees' 2007.*

* RPAs of T25, T27 and T28 and notably the public realm trees T1 and T2.

6. MAIN CONSTRUCTION WORKS

1. There will be a *temporary* on-site Site Office(s).
2. **Temporary Storage of Construction Material/Equipment**: See areas plotted on the appended TPP.
3. **Construction Exclusion Zone (CEZ):** There must be no (a) storage of construction material/equipment or (b) preparation of noxious substances (e.g. cement) in any area designated as the CEZ and enclosed by the TPB.
4. **Detached garage:** This can be constructed after the main build had been completed (during the build its location shall be used for Temporary Storage of Construction Material/Equipment). See notation on the appended TPP.
5. Before commencing work on site, all operatives must be briefed by the **Site Agent/Contract Manager** on the importance of protecting both on and off-site trees. The basis of this briefing will be the protection measures as set out on the Tree Protection Plan (TPP) including the position of staked and braced **Tree Protection Barriers, Scaffold Ground Protection** and **Construction Exclusion Zones**. As such the TPP shall be clearly displayed on the wall of the site hut/office. **NB** During the demolition and/or construction the **Site Agent/Contract Manager** will be responsible for all tree protection measures. See also ***Site Supervision Responsibilities*** below.
6. On no account should cement or other noxious substances (e.g. diesel or solvents) be mixed/prepared or stored within the footway or road surrounding the street-tree limes T1-T3. Such substances can seep down into the underlying (RPA) soil and harm/result in tree root mortality. See Note 4 on the appended TPP.
7. Fires on site will be avoided if possible. Where they are unavoidable they must not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction must be taken into account when determining its location and it should be attended at all times until safe enough to leave.

7. SITE SUPERVISION RESPONSIBILITIES

1. It will be the responsibility of the main contractor to ensure that any tree protection planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
2. The main contractor must assign tree protection monitoring duties to one or more individuals working at the site, who will be responsible for all tree protection monitoring and supervision (see the *Site Personnel Induction Form* at Appendix MS iii).
3. The individual(s) assigned tree protection monitoring duties must:
   - Be present on site for the majority of the time;

- Be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout all phases of the development;
- Be responsible for ensuring all tree protection measures are adhered to as detailed in the Arboricultural Impact Assessment (AIA) report and Arboricultural Method Statement (AMS);
- Ensure all site operatives without exception read and understand the tree protection and control measures detailed in the AMS;
- Keep on file all individual Site Personnel Induction Forms which must be signed by all site operatives (including sub contractors) indicating they have read and understood the control measures detailed within the AIA report and AMS;
- Maintain a written record of Tree Protection / Construction Exclusion Zone inspections, to be kept up to date by the person(s) who have been designated the inspection and monitoring duties;
- Have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
- Be responsible for ensuring that all site operatives including sub contractors are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
- Make immediate contact with the Consulting Arboriculturist in the event of any tree related problems occurring, whether actual or potential. (Contact details including telephone number and email address are listed on the Title Page).

4. The Construction Exclusion Zone fencing, ground protection and all signs must be maintained in position at all times and checked on a regular basis by the on-site person(s) who have been designated that responsibility.
5. The main contractor will be responsible for contacting the Local Planning Authority and the Consulting Arboriculturist at any time issues are raised relating to the trees on site.
6. If at any time pruning works are required, permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998:2010 Tree Work – Recommendations (As updated).
7. The main contractor will ensure the build sequence and phasing is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position and undisturbed until completion of ALL construction works on the site.
8. The main contractor will be responsible for ensuring all site operatives including sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

8. REMOVAL OF *TEMPORARY* SCAFFOLD GROUND PROTECTION (TGP) AND TREE PROTECTION BARRIERS (TPBs)

1. The TGP & TPBs will be removed only upon completion of the construction.

9. NEW TREES/HEDGING (see Appendix MS(i) below)

1. We have been asked to recommend tree species notably for the site frontage:

   - To replace T7: 1 x sweet gum
   - Flanking each side of T7: 2 x silver birch (see notation on the appended TPP)

2. Tree(s) to be supplied as (a) container-grown Heavy Standard(s) and (b) with at least a 12:14cm trunk girth. **NB** Container-grown stock can be planted at anytime, but require plenty of watering to aid establishment.
3. Tree planting must only be undertaken by fully trained and competent staff.
4. If weather and ground conditions permit, trees must be planted immediately after arrival on site. All planting periods should avoid very dry spells or extreme wet weather.

APPENDIX MS(i)
PLANTING & AFTER-CARE (PRINCIPLES) OF CONTAINER-GROWN STANDARD TREES

Planting:

1. Excavate a **square tree-pit** to a depth of 450mm and at least 750mm across (i.e. enough space into which to place the root-ball with a wide gap around it into which soil can be back-filled). The excavated soil must be kept for back-filling with the exception of sub-soil or inferior material that should be discarded. Unless soils are in extremely poor condition, added fertilisers are unnecessary. When the correct depth is reached (see point 4 below), the bottom of the tree-pit should be lightly broken up to aid root penetration and drainage. All glazed (clay) sides must be loosened. Tree pits must not be left open over night.
2. Before planting, all young trees should be pruned to remove all dead wood and weak or crossing branches to encourage the development of a well-shaped/developed crown. All damaged roots must be cleanly removed. All

branch pruning cuts should conform with the natural target pruning methodology and in accordance with **BS 3998 (2010) 'Tree Work-Recommendations'**.

3. Remove the tree from its container. If roots are coiled around the shape of the pot they should be gently loosened to prise them out. Any trees that are pot-bound (i.e. with thick girdling roots running around the shape of the pot) should be rejected and returned to the supplier.
4. Trees must be planted so that the joint of root and stem (***nursery mark***) is level with the finished planting height. An L-shaped perforated irrigation tube should be installed before the tree is planted so that irrigation water can be directed down this tube and under and along base of the root-ball (see section 7.0). Backfill should consist of the excavated top-soil (no sub-soil or inferior material).
5. Use only a short (no more than 1/3 height of the tree) single/double tree-stake to allow trunk movement and trunk-base thickening. To prevent chaffing, the tree-tie(s) should form a figure of eight or have a spacer between the tree and the stake. **IMPORTANT:** Remove tree-stakes after 2-3 years.
6. Tread gently to firm the root-ball into position.
7. Immediately water the tree to saturate the soil preferably using a full watering with fine (sprinkler) rose fitted to avoid soil surface run-off. Subsequent irrigation will be required (see section 4.0) during the spring and summer months: at least weekly at a rate of 10-15 litres of water. And every other day during the height of summer or during long periods of hot weather.
8. To control weed growth and keep moisture in the soil add mulch: a 10cm deep layer of wood-chips/bark-chippings around the tree base. This should cover an area at least 1m dia. See strimmer/mower damage in section 9 below.
   NB Keep mulch away from the trunk base or fungal rot may result.
9. In order to avoid mower/strimmer damage to tree trunk bases (i.e. bark stripping), grass seed/turf ***should not*** be laid within a 0.5m (min.) radius around trees.
10. **IMPORTANT:** Remove tree-stakes after 2-3 years.

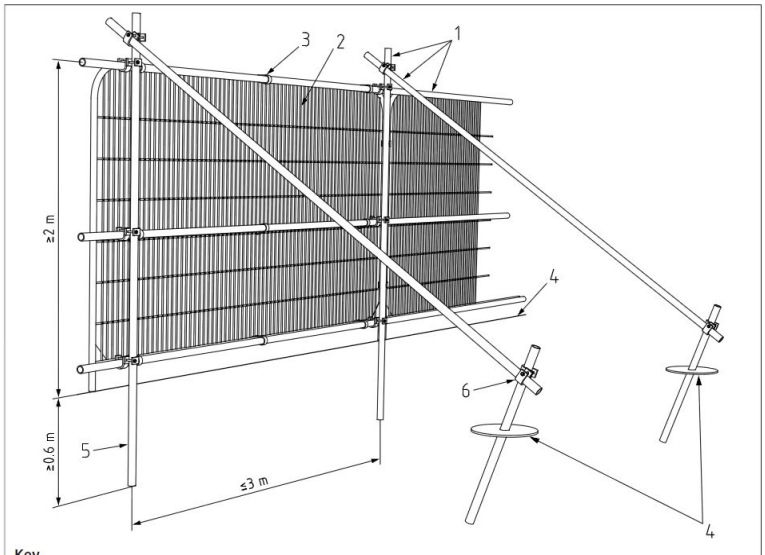
After Care:

The after-planting maintenance period for container-grown standard trees is twenty-four months after first bud-break. During this period such after-care works must include the following:

- Watering during dry summer months.
- Checking stakes and adjusting tree-ties at least twice per year (**NB** tree-ties are a *temporary* measure and should ideally be removed after three years).
- Weed control preferably by mulch reapplication (see point 8 above).
- Stake removal ideally after 2-3 years. Before the stake is removed completely gently rock the tree from side to side to check that the root-ball is firmly anchored in the ground. If this lifts out of the ground then re-tie the tree and carry out this procedure the following year.

APPENDIX MS(ii)

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

APPENDIX MS(iii)
Site Personnel Induction Form

Name:

Site Address:

Date:

Declaration	**Tick to Confirm**
I have read and understand the Arboricultural Method Statement and the requirements to be employed / actioned at the site regarding tree protection.	
I understand that all tree protection measures (fencing and ground protection) must not be moved or disturbed throughout the development project without prior agreement with the Consulting Arboriculturist.	
I understand that certain operations must only be undertaken under supervision of the Consulting Arboriculturist or a suitably qualified Arborist and/or must not be undertaken without their approval.	
I acknowledge that any concerns I have regarding the protection of trees at and adjacent to the development site will be brought to the attention of the Site Manager/Supervisor.	
I acknowledge that I must not cause direct or indirect damage to any on site or neighbouring tree, either above or below ground level during the course of my daily operational duties.	

Signed:……..

APPENDIX 4

TREE PROTECTION BARRIER SPECIFICATION

1 page only

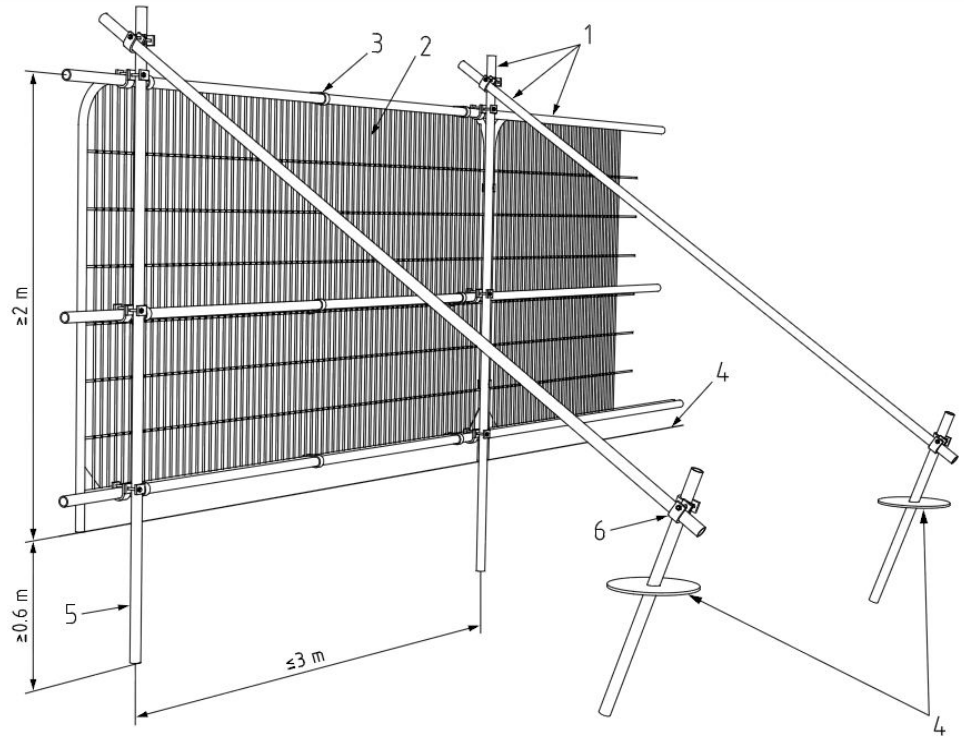
TREE PROTECTION BARRIER SPECIFICATION

The Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) enclosed by temporary protective fencing must:

1. Be erected prior to any site works, demolition or construction works, delivery of site accommodation or materials and must remain for the duration of the demolition/construction works. All-weather notices should be attached to the barriers with the following wording: **"CONSTRUCTION EXCLUSION ZONE – NO ACCESS"**
2. Be protected by temporary protective fencing and other measures as specified and as defined by area (m^2) on the drawings (Tree Protection Plan - TPP).
3. Preclude the storage or tipping of all materials and substances, in addition, toxic substances such as fuels, oils, additives, cement, or other deleterious substances within 5.0 metres of an exclusion zone.
4. Any incursion into the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) as indicated on the Tree Protection Plan (TPP) must be by prior arrangement, following consultation with the Local Planning Authority.

Temporary Tree Protection Barrier (Specification taken from BS:5837 -2012)

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

APPENDIX 5

OUTLINE CIRRICULUM VITAE AND PROFESSIONAL EXPERIENCE

Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MSB.
Chartered Biologist

Qualifications

- BSc. (Hons.) Botany (Manchester University).
- Post Graduate Diploma: Landscape Management (Manchester University).
- Royal Society of Biology **Chartered Biologist** (since 1995).
- International Society of Arboriculture **Certified Arborist** No. UI 1287A (2017)
- *LANTRA* Approved **Professional Tree Inspector** (Ref: HO00178227 504187)
- International Society of Arboriculture **Qualified Tree Risk Assessor** (ID: 2148)

Professional Experience (1984-2012)

- Tree Works Contractor.
- Harrow Council: Assistant Tree Officer (Parks Dept.)
- London Tree Officers Association: Executive Officer.
- International Society of Arboriculture (European office): Senior Executive.
- Arbol Euro Consulting: Technical Director (**Madrid, Spain**).
- Harrow Council: Principal Tree Preservation (TPO) Officer. During my employ with Harrow Council I served on the Executive Committee of the *"London Tree Officers Association"*.
- Arbol Euro Consulting Ltd: Technical Director (**London, UK**).

Professional Memberships

- International Society of Arboriculture (ISA). President of the ISA UK/I Chapter (2010-2012).
- Arboricultural Association
- Consulting Arborist Society
- Royal Society of Biology
- Royal Horticultural Society (Chelsea Flower Show *Silver-Gilt* medal Winner: *Rainforest Belize* – 1996)

Contact Details

- Mobile: 078844 26671
- Email: russell@arboleuro.co.uk

HEADINGS & ABBREVIATIONS

TREE NO.	REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE
SPECIES:	COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
AGE RANGE/LIFE STAGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
CROWN SPREAD:	MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
CROWN CLEARANCE &DIRECTION OF GROWTH:	HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIA/MULTI-STEM DIA:	STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, N = NORMAL
ESTIMATED REMAINING CONTRIBUTION:	RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
BS 5837CATEGORY & SUB-CATEGORY GRADING:	A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION: SUB-CATEGORY REFERS TO ARBORICULTURAL (1), LANDSCAPE (2) & CULTURAL/CONSERVATION VALUES (3).
BS 5837 RPA:	ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M^2)
BS 5837 RADIUS:	PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER

SITE:	31 BEECH HILL AVENUE SURVEY HADLEY WOOOD
CLIENT:	NICK CRISTOFI
BRIEF:	CARRY OUT A PHASE II ARBORICULTURAL IMPACT ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	14/07/2020
VIEWING CONDITIONS:	SUNNY - CLEAR
JOB REFERENCE:	101 577

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m) N	E	S	W	CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m^2)
T1	Cherry *Street tree*	M	4.5	1.9	1.9	1.9	1.9	2.2	222	M	Some scaffold limbs lopped in past with crown deadwood sections	None at Time of Survey (NATS)	C1	2.6	22.3
T2	Hawthorn *Street tree*	Y	2.0	0.6	0.6	0.6	0.6	1.8	60	N	Newly planted tree	NATS	C1	0.72	1.63
T3	Cockspur Thorn *Street tree*	EM	5.5	3	2	3	2.5	2.8	210	N	Significant tree in street scene though western crown suppressed by adjacent trees	NATS	C1	2.5	19.9
T4	Norway Maple *Street tree*	SM	6	1.8	2.5	2.5	1.8	2.5	240	N	Unbalanced suppressed crown form	NATS	C1	2.8	26.1
T5	Silver Birch *Street tree*	EM	7	0.8	1.2	1.2	1.2	5.5	222	M	Upper crown dying back	NATS	C1	2.6	22.3
T6	Norway Maple (possible "Crimson King") *Street tree*	EM	14	3	4	5	4	6.5	430	N	Significant tree in street scene though southern crown suppressed by adjacent trees	NATS	C1	5.1	83.5
T7	Willow-leaved Pear	EM	3.5	1.8	1.8	1.5	1.5	-	190	N	Unbalanced crown form	NATS	C1	2.2	16.3
S1	Magnolia	EM	3.0	1.7	1.9	1.9	1.9	-	* 75; 40x 2; 30 x3	N	Has with well-balanced crown form but otherwise a large insignificant shrub	NATS	C2	1.2	4.5
T8	Cockspur Thorn	SM	4.5	1.5	2	1.5	1.5	-	180	N	Highly suppressed crown form	NATS	C1	2.1	14.6

SITE:	31 BEECH HILL AVENUE SURVEY HADLEY WOOOD
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JOB REFERENCE:	101 577

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m) N	E	S	W	CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m^2)
T9	Damson	EM	6.5	3	2	3.5	4	-	* 270; 180; 120; 120	N	Possibly topped in past with leaning trunks (not significant). Crown suppressed by adjacent linear group trees	NATS	C1	3.9	48.9
T10	Damson	EM	7.0	3.5	3.5	3.5	3.5	-	320	N	Dominate tree in linear tree group	NATS	B1	3.8	46.3
T11	Damson	SM	5.5	1.8	1.8	1.8	1.8	-	210	N	Crown suppressed by adjacent linear group trees	NATS	C1	2.5	19.9
T12	Damson	SM	6.5	1.5	2	3	2	-	180	N	Crown suppressed by adjacent linear group trees	NATS	C1	2.1	14.6
T13	Damson	SM	5	1.8	1.8	3.5	1.8	-	170	N	Leaning trunk that has a vertical split (hazard-beam). As upper crown lodged in adjacent trees this defect is not significant at this time. Part of a linear tree group	NATS	C2	2.1	13.1
T14	Purple Plum	OM	5.5	-	-	-	-	-	-	P	Crown approx. 70% dead	Re-assess within 12 months with a view to removal	U	-	-
T15	Damson	OM	5.5	-	-	-	-	-	-	P	Crown approx. 60% dead	Re-assess within 12 months with a view to removal	U	-	-
H1	Leyland Cypress hedge (x6)	SM-EM	5.5-6.5	1.6	1.6	1.6	1.6	-	Est. Av. 190	N	Informal hedging that provides some useful neighbour screening: northern section suppressed by T6	NATS	C2	2.2	16.3
T16	Damson	EM	4.5	3.5	1.8	1.8	1.8	-	240	N	Unbalanced crown form: part of a linear tree group	NATS	C1	2.8	26.1

SITE:	31 BEECH HILL AVENUE SURVEY HADLEY WOOOD
CLIENT:	NICK CRISTOFI
BRIEF:	CARRY OUT A PHASE II ARBORICULTURAL IMPACT ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	14/07/2020
VIEWING CONDITIONS:	SUNNY - CLEAR
JOB REFERENCE:	101 577

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m) N	E	S	W	CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m^2)
T17	Goat Willow	M	8.5	2.5	4	3	3.5	3.5	* 245; 270; 220; 240; 220; 200	N	Heavily topped in past likely due to close third-party building proximity. Two of the western trunks have significant (old) trunk wounding (0.5-1-0m high x 30-40cm wide)	Re-top wounded trunk sections within 12 months to prevent trunk failure	C1	6.8	146.7
T18	Goat Willow	M	8.5	4	3.5	2.5	3	3.5	650	N	Heavily topped in past likely due to close third-party building proximity.	NATS	C1	7.8	191.1
T19	Lawson Cypress	SM	4	1.2	1.2	1.2	1.2	0.2	160	N	Highly suppressed tree	NATS	C1	1.9	11.5
T20	Hawthorn	EM	7	2	2	1.2	2	2.5	200	N	Northern crown suppressed by T18	NATS	C1	2.4	18.1
T21	Ash	SM	7	1.9	1.9	1.9	1.9	2.2	120	N	Potential to develop into a fine specimen tree	NATS	B1	1.4	6.5
T22	Ash	SM	5	0.2	0.2	1.9	0.2	1.2	90	N	Almost prostrate crown form	NATS	C1	1.1	3.6
T23	Norway Maple	EM	7	3	1.5	3	4	3.0	205	N	Poor unbalanced crown form	NATS	C1	2.4	19.1
H2	Beech hedge (x 11)	Y-SM	3.5-4.0	0.8	1.8	0.1	1.8	-	Est. Av. 160	N	Provides useful neighbour screening (though one is dying back – not significant at this time)	NATS	C2	1.9	11.6
T24	Damson *Third-party tree with no access to fully survey*	SM	3	3	1.8	1.5	1.8	-	Est. * 100; 60;40	N	Unbalanced crown	? See access	C1(?) See access	1.4	6.8

SITE:	31 BEECH HILL AVENUE SURVEY HADLEY WOOOD
CLIENT:	NICK CRISTOFI
BRIEF:	CARRY OUT A PHASE II ARBORICULTURAL IMPACT ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	14/07/2020
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	101 577

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m) N	E	S	W	CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m^2)
T25	Lawson Cypress *Third-party tree with no access to fully survey*	EM	5.5	1.9	1.9	1.9	1.9	2.5	Est. 280; 40	N	Upper crown suppressed by T26: average tree	? See access	C1(?) See access	3.3	36.1
T26	Ash *Third-party tree with no access to fully survey*	EM	11	-	-	-	-	-	-	-	In recent past, the co-dominate trunk has failed and spit apart. Currently these failed trunk sections have been arrested (supported) by adjacent trees	Within next 7 days the tree owner should be contacted verbally and in writing to advise them of this ***hazard*** tree that should (without delay) be de-limb back to the main trunk/whole tree removed ***Risk Targets:*** (a) Front drive of No. 33. (b) Gym building of the subject property	U	-	-
T27	Tulip Tree	Y	5.0	1.5	1.5	1.5	1.5	? See access	Est. 120	N	Suppressed by T26	? See access	C1	1.4	6.5
T28	Lawson Cypress	EM	7.5	2	2	2	2	-	Est. 230	N	Mid and upper western crowns are suppressed by T26	? See access	C1	2.7	23.9

Arbol EuroConsulting Ltd.

1 Landford Close Rickmansworth WD3 1NG
Mobile: 07884426671

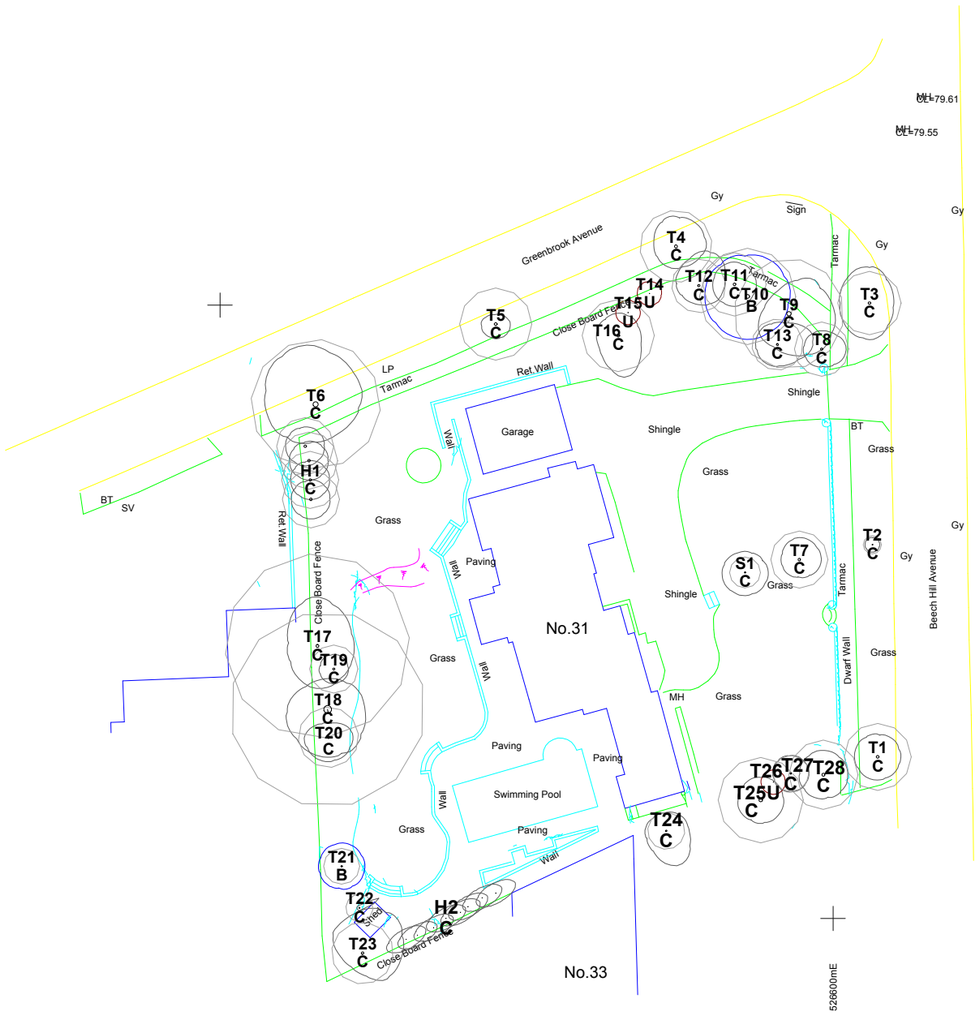
31 Beech Hill Avenue EN4 0LU
Tree Constraint Plan

SCALE :	DATE :
1:500 @ A3	1/22/2021

MAP FILENAME : 101 577

N

The original of this drawing was produced in colour - a monochrome copy should not be relied upon

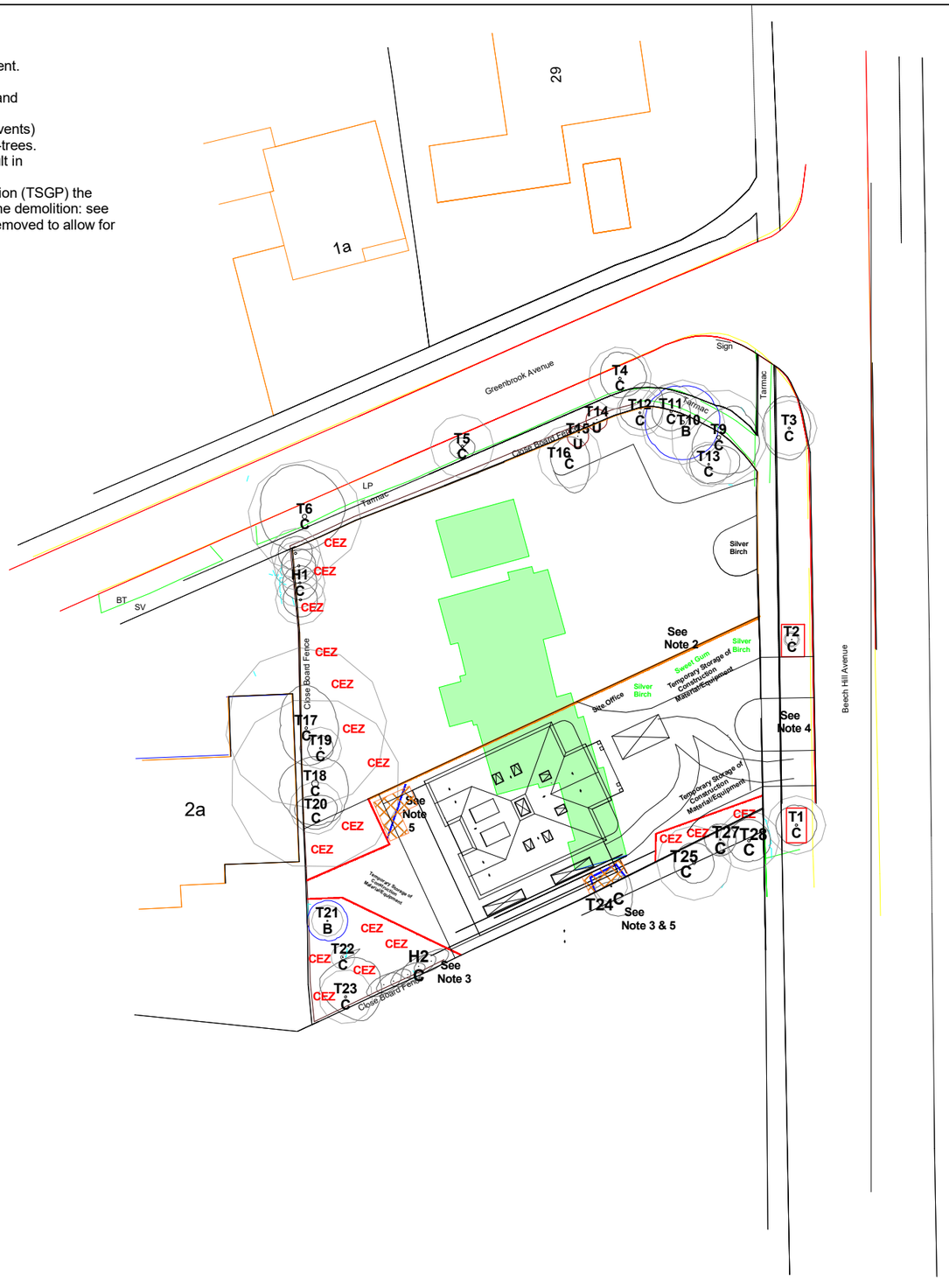


KEY

Root Protection Area (RPA)
Crown Spread
BS: 5837 Retention Grade

5m 10m 15m 20m
SCALE BAR

NOTES
1. The existing property is green-shaded.
2. Trees/shrubs S1 and T7 have been removed off plan to facilitate development. The hazard ash tree T26 has also been removed.
3. Crown overhang into site from T24 to be pruned back to the site boundary and the end section of H2 to be removed. This is to provide construction space.
4. On no account shall cement or other noxious substances (e.g. diesel or solvents) be mixed/prepared or stored within the footway or road surrounding the street-trees. Such substances can seep down into the underlying (RPA) soil and harm/result in tree root mortality.
5. In regard to the temporary scaffolding incorporating planked ground protection (TSGP) the RPA construction site incursion from T18 and T24 shall be fenced-off during the demolition: see blue TPBs. After the demolition, these blue additional TPB sections shall be removed to allow for the TSGP installation.



KEY

- Root Protection Area (RPA)
- Crown Spread
- BS: 5837 Retention Grade
- Temporary Staked & Braced Tree Protection Barriers
- CEZ = Construction Exclusion Zone
- Temporary Tree Box
- Temporary Scaffolding incorporating planked Ground Protection
- Temporary Site Hoarding

Arbol EuroConsulting Ltd.
1 Landford Close Rickmansworth WD3 1NG
Mobile: 07884426671

31 Beech Hill Avenue EN4 0LU
Tree Protection Plan

SCALE : 1:500 @ A3
DATE : 09/10/2023
MAP FILENAME : 101 874

N

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THIS TREE PROTECTION PLAN MUST BE READ IN CONJUNCTION WITH THE ARBORICULTURAL METHOD STATEMENT THAT ACCOMPANIES THE TREE REPORT (IN APPENDIX 3)

5m 10m 15m 20m
SCALE BAR