35 Brookdene Drive Northwood HA6 3NS

Phase II Arboricultural Impact Assessment (AIA)

(Ref. 101 958)

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Prepared by:
Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MRSB

Royal Society of Biology *Chartered Biologist*
International Society of Arboriculture *Certified Arborist*
LANTRA Approved *Professional Tree Inspector*

No. 1 Landford Close, Rickmansworth, WD3 1 NG
Mobile: 078844 26671 Email: russell@arboleuro.co.uk www.arboleuro.co.uk

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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 trees in regard to the proposed development. See section 6.1.2. We visited the site on 13/10/2022 to carry out the tree survey.

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

Development Control: 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.

Local Planning Authority Position: 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.

Report Validity: This AIA report is valid for a period of 16 months (from its date of publication), and is subject to any AIA tree management recommendations and their recommended timeframes. If this 16 month period elapses, a *verification* tree survey will be required to enable *re-validation* 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 local planning authority (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 that some of the trees are subject to a TPO (see section 6.1.1): though not including the yew T1 (see section 6.2). With regard to this TPO, no tree pruning or felling works *(if required)* should commence at this property until the necessary written permissions or *full* planning permission have been obtained from the LPA in respect of this TPO CA.

4.2 WILDLIFE LEGISLATION

The Wildlife and Countryside Act 1981, the Habitats Regulations 1994 (or any other acts offering wildlife protection) form the basis for UK legal wildlife protection. 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.

Specifically:

Bats

All British bats, as well as their roosts and breeding sites are protected under British Law. The Wildlife and Countryside Act 1981 schedule 5 and The Habitat Regulations make it an offence to:

- Deliberately disturb bats
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport a bat or any part of a bat

Birds

The Wildlife and Countryside Act 1981 makes it an offence to:

- Intentionally kill injure or take a wild bird
- Destroy a nest while in use or take or destroy eggs.

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. 35 Brookdene Drive Northwood HA6 3NS: 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 detached two-storey property with a detached rear garage accessed off the road via a short driveway. Immediately around the property, on its western and southern side there is a sunken patio. The front and eastern side gardens are relatively small with notably a large close-proximity oak in the front garden that we believe is subject to a TPO. The western side garden is larger and is mostly laid to lawn with some trees. See section 6.2.

6.1.2 The proposal: Demolition of the existing dwelling and erection of the new dwelling 2 storey, rear garage converted to a habitable ancillary use room, garden fence moved to the side of the pavement and a new drive at the bottom of the site with existing crossover by the garage removed and with new landscaping and trees proposed. Bins storage provided and EV chargers. 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

6.2.1 Front: Due to its close building proximity, the red oak T2 has been substantially reduced. However, it still retains good crown form, is a focal tree in the street-scene and thus clearly merits a B-grade.

6.2.2 Eastern Side: Again with its close building proximity, the yew T1 has been pruned overtime with its now unnatural box-shaped crown. As such whilst clearly visible in the street scene, it is a border-line B-grade tree.

6.2.3 Western Side: There are four trees (T3-T6: a mix of apple, cypress, Eucalyptus and cherry). These are average medium/small sized trees and correspondingly merit C-grades. The only tree of note is the Eucalyptus T5 with its substantive well-balanced crown form.

6.3 TREES OFF-SITE

There are no close proximity off-site trees.

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 new** underground services were not identified on the provided plans. However, it is likely that the existing services would be used. If any new/upgraded services are required then these **would *not*** be sited within the Root Protection Areas of the frontage oak T2 without prior discussion and approval from the LPA and/or a Consulting Arborist. See section 6.5.

6.4.2 CEZ 1: Root Protection Areas (RPAs)
There is already oak T2 RPA incursion on the NE corner of the *existing* property. And notably in this corner, the proposed build is on the same footprint. There would therefore be no (additional) significant RPA impact on this tree.

6.4.2.1 Footprint of the Proposed Build
The yew T1 represents a constraint on the potential build in regard to the proposed extended frontage footprint, need for temporary scaffolding and post development pressure (from windows that would face out towards this tree). For these reasons T1 has been removed. Two new replacement trees (silver birch and snowy mespil) have been

specified as per the Clive Warwick Landscape design plan (dwg. No. CWLD-DSSA-BD-2480-01). See section 6.4.5. To provide for construction space, trees T2, T3, T4 and T6 would also have to be removed. See oak T2 pruning in section 6.4.3.

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 rear Construction Exclusion Zone (CEZ) - this would afford adequate RPA protection for T5. The TPBs would be installed prior to any demolition and/or construction. On no account would this CEZ be used for the storage/preparation of any construction/building materials. Additionally, TPBs in the form of *temporary* braced heavy-duty ply-boards would be placed around the two replacement tree planting areas to prevent soil compaction and/or contamination (see Note 4 on the appended TPP). Again these would be installed prior to any demolition and/or construction.

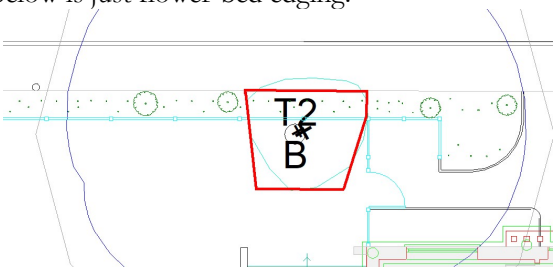
Tree Protection Box (TPB): To protect both the trunk and tree pit of the oak T2 a *temporary* braced heavy-duty ply-board TPB would be installed. See example below. **NB** To be installed prior to any demolition and/or construction

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

Temporary Ground Protection (TGP): Prior to demolition and construction and to protect the RPA incursion into the build site from the oak T2, the main contractor would install the TGP. We recommend the use *(as per the suppliers use-recommendations)* of Durabase (http://terrafirma.gb.com/), Ground Guards (https://www.ground-guards.co.uk/sectors/tree-root-protection/), Eve-Trackway (http://www.evetrakway.co.uk/) due to their recognised anti-soil compaction properties (i.e. to protect underlying tree roots – see Note 2). **Note 1:** If other similar TGP systems are used they must also have recognised anti-soil compaction properties (i.e. to protect underlying tree roots). **Note 2: Underlying compressible layer:** A 100mm deep compressible (woodchip) layer on geotextile sheeting should be placed under the TGP. Even for block-paved driveways this compressible layer should be considered and as such advice from the product supplier should be taken. **NB** As such the TGP would be laid on the *existing* hard-standing and patio and it would then be taken up by operatives using only hand-tools once the build has been completed. **Note 3:** It is vital that the TGP is in place before any demolition/construction works begin on site. **Note 4:** To prevent TGP slippage

the panels should be pinned. **Note 5:** On no account would cement or other noxious substances (e.g. diesel or solvents) be mixed/prepared or stored on this TGP as such substances can seep down into the underlying (***T2 RPA***) soil and harm/result in tree root mortality. An exception would be unless any preparation is on top of thick heavy-duty polythene sheeting. Importantly, as indicated on the appended TPP, see the storage and mixing area for cement or other noxious substances (e.g. diesel or solvents): that is outside the T2 RPA.

New Boundary and Bin-Store Fencing (see TPP snippet below): Firstly, this would be erected after the main construction has been be completed with the TPB and TGP removed from around T2 and with also all the machinery taken off site. The fence post holes would be hand-dug and if any significant T2 tree roots (i.e. over 2.5cm dia.) are encountered then either (a) this/these root(s) would be cut back cleanly using a sharp handsaw and/secateurs or (b) the fence post-hole would be moved (may require fence half-sections to be used). Due to the potential impact on tree roots, these fence post-hole excavations within the RPA of T2 (see gray hexagonal RPA plotted below) we would recommend that these works be supervised by a suitably qualified consulting arborist. **NB** The curved element below is just flower-bed edging.



Temporary Storage of Machinery and/or Materials: See notation on the appended TPP. Again, importantly, on the append TPP see the storage and mixing area for cement or other noxious substances (e.g. diesel or solvents): that is outside the T2 RPA.

6.4.3 CEZ 2: Tree Crown Protection Zones

6.4.3.1 Facilitation pruning: Note in the photo below, the oak T2 low southern-crown encroachment over the NE corner of the *existing* property. This would need to tipped back to provide space for the erection of temporary scaffolding and also potentially for the use of – if required – a piling rig. This would only constitute minimal tree works with no impact on the overall crown form of T2 (and it could be argued would be required regardless of this proposed development). The exact extent of these works is not known at this stage but could be discussed during the pre-commencement site visit.

6.4.3.2 Demolition crane use: If a crane is to be used then due to the close proximity of the oak T2 crown. This should be supervised by a suitably qualified consulting arborist to ensure that no branch damage occurs to this tree.

6.4.4 CEZ 3: Tree Dominance Zones

As there would be no material difference between the oak T2 and the existing property vs the proposal build, there would therefore be no CEZ 4 issue.

6.4.5 CEZ 4: New Tree Planting Zone

To replace the yew T1, two new replacement trees (silver birch and snowy mespil) have been specified as the Clive Warwick Landscape design plan (dwg. No. CWLD-DSSA-BD-2480-01). The planting area for these replacement trees would be fenced-off during the build to prevent the soil from compaction and contamination. Trees should be supplied as (a) container-grown Heavy Standard trees and (b) with at least a 12:14cm trunk girth.
See the importance of soil conservation in soil in section 3.1.4.

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. **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 the frontage oak T2.

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.

6.7 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 yew T1 has already been removed. To provide for construction space, trees T2, T3, T4 and T6 would also have to be removed. Some minor tipping back on the oak T2 would likely be required.

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 CEZ 4 issues with this application.

7.1.4 CEZ 4 – new planting: Two new replacement trees (silver birch and snowy mespil) would be planted.

7.1.5 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).

7.1.6 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 Arboricultural Method Statement.

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 TREE WORKS - BEST PRACTICE

Subject to LPA written permission/consent (if applicable - see section 4.1.2) and owners consent, all tree works must conform rigorously to *BS 3998 (2010)* 'Recommendations for Tree Work'* and as modified by research more recent.

All retention trees should be inspected annually by an Arboriculturist to assess the significance of any future physiological, morphological or environmental changes.

* Including any subsequent revisions.

8.4 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.

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.
- Arboricultural Association guidance note *"The use of cellular confinement systems near trees: a guide to good practice"* (2020).
- *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)

No. 1 Landford Close Rickmansworth WD3 1 NG
Mobile: 078844 26671
Email: russell@arboleuro.co.uk

APPENDIX 1

TREE SURVEY SCHEDULE
(see appended at end of report)
1 page

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
5 pages

ARBORICULTURAL METHOD STATEMENT (AMS)

Site: No. 35 Brookdene Drive Northwood HA6 3NS

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 Zone (CEZ): ***before*** any demolition and/or construction works begin on-site.
4. Install *temporary* ground protection (TGP): ***before*** any demolition/construction works begin on-site.
5. Route underground services: not within the RPAs of any retention trees (oak T2)
6. Main construction works.
7. Site Supervision Responsibilities
8. Remove TGP, TPBs and hard-standing areas.
9. Tree Replacement.

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. The yew T1 has already been removed. To provide for construction space, trees T2, T3, T4 and T6 shall also be removed. Rear garden shrubs also to be removed. Oak T2 facilitation pruning: the low southern-crown encroachment over the NE corner of the *existing* property will likely need to tipped back to provide space for the erection of temporary scaffolding and also potentially for the use of – if required – a piling rig. The exact extent of these works is not known at this stage but could be discussed during the pre-commencement site visit (see section 1.0 above).
2. These tree pruning works will be subject to written permission /full planning permission from the Local Planning Authority (Council) as T2 is protected by a Tree Preservation Order (TPO).
3. All arboricultural pruning works must conform to the recommendations of BS 3998 (2010) 'Recommendations for Tree Work'.
4. 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.
5. 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. 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 rear fenced-off **Construction Exclusion Zone**: CEZ (marked up on the TPP). On no account shall this CEZ be used for the storage/preparation of any construction/building materials. Additionally, TPBs in the form of *temporary* braced heavy-duty ply-boards shall be placed around the two replacement tree planting areas to prevent soil compaction and/or contamination). Again these would be installed prior to any demolition and/or construction.
2. **Tree Protection Box (TPB)**: To protect both the trunk and tree pit of the oak T2 a *temporary* braced heavy-duty ply-board TPB shall be installed. See example below. **NB I** To be installed prior to any demolition and/or construction

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

3. Prior to commencement of any site demolition, construction, preparation, excavation or material deliveries, the Consulting Arborist will inspect installation of the TPBs and the CEZs. Any damage occurring to the TPBs during the demolition or construction phase will be made good by the main contractor.

4. INSTALL *TEMPORARY* (ANTI SOIL-COMPACTION) GROUND PROTECTION (TGP)

1. Prior to any demolition and/or construction and to protect the RPA incursion into the build site from the oak T2, the main contractor will install the TGP. We recommend the use of *(as per the suppliers use-recommendations)* Durabase (http://terrafirma.gb.com/), Ground Guards (https://www.ground-guards.co.uk/sectors/tree-root-protection/), Eve-Trackway (http://www.evetrakway.co.uk/) due to their recognised *anti-soil compaction* properties (i.e. to protect underlying tree roots – see Note 2). **1.1:** If other similar TGP systems are used they must also have recognised *anti-soil compaction* properties (i.e. to protect underlying tree roots) **1.2: Underlying compressible layer:** A 100mm deep compressible (woodchip) layer on geotextile sheeting should be placed under the TGP. Even for block-paved driveways this compressible layer should be considered and as such advice from the product supplier should be taken. **NB** As such the TGP shall be laid on the *existing* hard-standing and patio and this will then be taken up by operatives using only hand-tools once the build had been completed (see section 8.1). **1.3:** It is vital that the TGP is in place before any demolition/construction works begin on site. **1.4:** To prevent TGP slippage the panels should be pinned.
1.5: On no account shall cement or other noxious substances (e.g. diesel or solvents) be mixed/prepared or stored on this TGP as such substances can seep down into the underlying (***T2 RPA***) soil and harm/result in tree root mortality. An exception would be unless any preparation is on top of thick heavy-duty polythene sheeting.
2. To prevent leakage into the soil all toxic substances such as fuels, oils, chemicals & cement must be carried in a portable bunded containers and petrol must be stored in a ventilated tool box. The storage and use of any bio toxic materials will conform to current industry standards and guidance.
3. The areas designated for ground protection must be clearly marked on the Demolition and Construction Management Plans, Architects plan drawing and/or Tree Protection Plan (TPP)

5. ROUTE UNDERGROUND SERVICES

1. Service runs will enter the property using junctions from existing services where at all possible. Any replacement/new underground services shall not be installed within RPA of the oak T2 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.*

6. MAIN CONSTRUCTION WORKS

1. **Temporary Storage of Construction Material/Equipment**: See areas plotted on the appended TPP. Also on this plan, importantly, see the storage and mixing area for cement or other noxious substances (e.g. diesel or solvents): that is outside the T2 RPA.

2. **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.
3. Before commencing work on site, all operatives must be briefed by the **Site Agent/Contract Manager** on the importance of tree protection. 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/Box, Ground Protection** and the **Construction Exclusion Zone**.
4. 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.
5. The **Site Agent** will be responsible for demolition/construction deliveries including self-loading cranes entering and leaving the site. Cranes/plant with booms/jibs and counterweights will be positioned in such a manner that retained trees and/or hedgerows are not at risk of damage. **NB Demolition crane use:** If a crane is to be used then due to the close proximity of the oak T2 crown. This use should be supervised by a suitably qualified consulting arborist to ensure that no branch damage occurs to this tree.

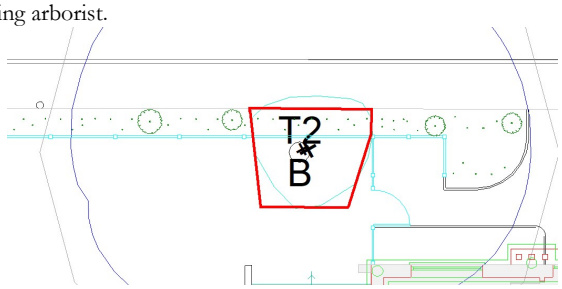
7. SITE SUPERVISION RESPONSIBILITIES

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 ii).
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* GROUND PROTECTION (TGP) AND TREE PROTECTION BARRIERS/BOX (TPBs)

1. The TGP & TPBs will be removed only upon completion of the construction. This will include the hard-standing and patio areas that were covered with the TGP. The boundary and bin-store fencing can then be installed (see TPP snippet overleaf). The fence post-holes shall be hand-dug and if any significant T2 tree roots (i.e. over 2.5cm dia.) are encountered then either (a) this/these root(s) shall be cut back cleanly using a sharp handsaw and/secateurs or (b) the fence post hole will be moved (may require fence half-sections to be used). Due to the potential impact on tree roots, these fence post-hole excavations within the RPA of T2 (see gray

hexagonal RPA plotted below) we recommend that these excavation works are supervised by a suitably qualified consulting arborist.



9. TREE REPLACEMENT (see Appendix MS(i) below)

1. With the completion of the construction and the removal of the TPBs, the two replacement trees can be planted (silver birch and snowy mespil) as specified on the Clive Warwick Landscape design plan (dwg. No. CWLD-DSSA-BD-2480-01).
2. Trees to be supplied as (a) container-grown Heavy Standards 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. More detailed tree planting information: British Standard BS8545: 2014 - *Trees: from nursery to independence in the landscape – Recommendations*.
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.

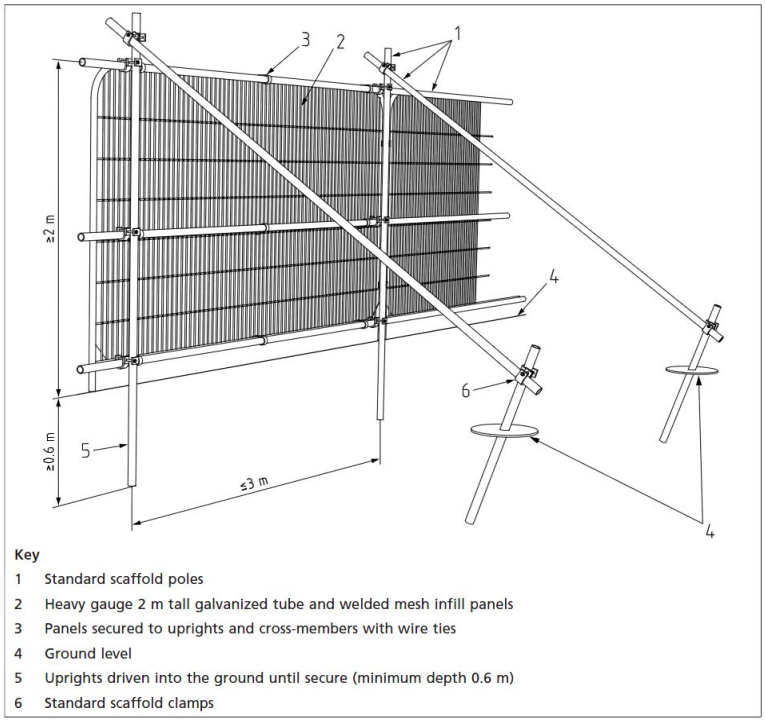
After Care:

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

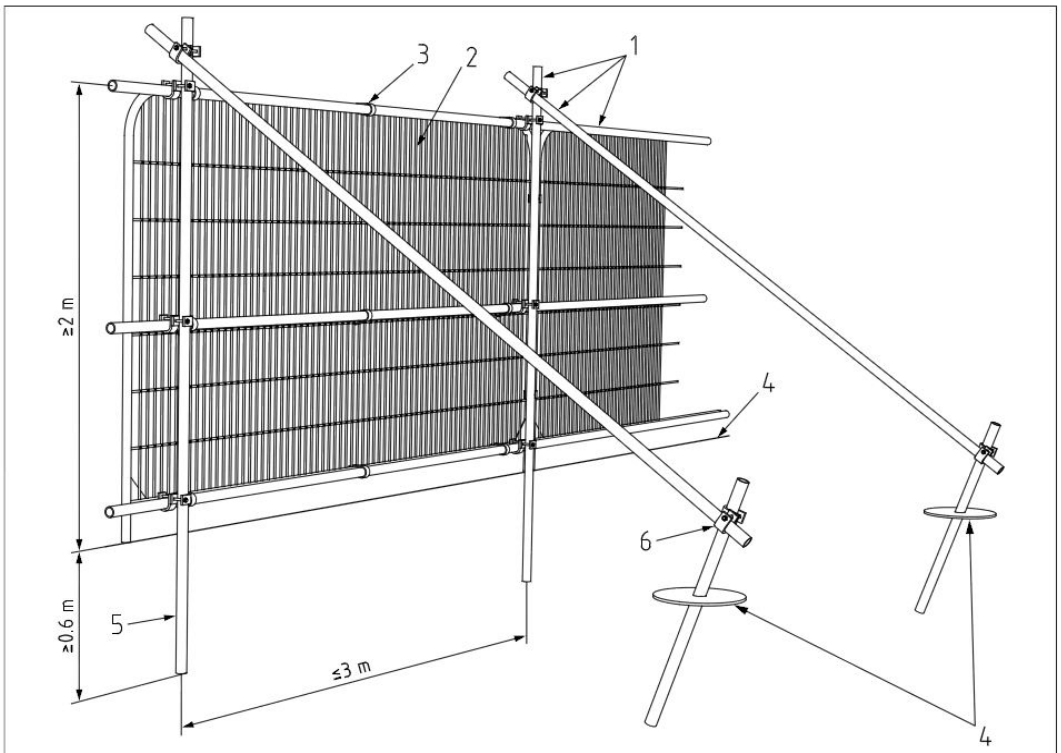
TREE PROTECTION BARRIER SPECIFICATION

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)

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

TREE SURVEY SCHEDULE

SITE:	35 Brookdene Drive Northwood HA6 3NS
CLIENT:	MR SALIM
BRIEF:	CARRY OUT A BS:5837 (2012) PHASE I ARBORICULTURAL IMPACT *(TREE CONSTRAINT)* ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	03/10/2024
VIEWING CONDITIONS:	SUNNY
JOB REFERENCE:	101 958

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	Yew	EM	10.0	4.0	2.5	4.0	4.0	-	490	N	Due to its *close proximity* to the road, subject property (including for views out of the front widow) and the neighbouring property, TI has been pruned back such that it has an almost box-shaped crown. *For this (three-fold) reason of close proximity T1 is a border-line B-grade tree.* It nonetheless provides significant public visual amenity (PVA)	None at time of survey (NATS)	B2 *(board-line)*	5.8	108.6
T2	Red Oak	EM	14.0	6.5	6.5	5.5	6.5	6.0	590	N	In the recent past, T2 has been substantively crown reduced likely due to its *close building proximity* but still retains good crown form providing significant PVA	NATS	B2	7.0	157.4
T3	Ornamental Apple	SM	4.8	3.2	2.5	2.5	2.5	1.2	* 60;70; 40;40	N	An average small tree	NATS	C1	1.3	5.2
T4	Lawson Cypress	SM	6.0	1.8	1.8	1.8	1.8	1.5	160	N	An average medium-sized tree	NATS	C1	1.9	11.58
T5	Eucalyptus	EM	14	4.5	4.5	4.5	4.5	2.0	410	N	Topped in past but retains good crown form	NATS	B2	4.9	76.1
T6	Cherry	SM	3.8	1.5	1.5	1.5	1.5	1.4	100	N	Average medium-sized tree	NATS	C1	1.2	4.5

NOTES
1. The existing property is gray-shaded.
2. The RPAs on both T1 and T2 are notional in that they should be squared-off and off-set away from the road but due to the adjacent subject property this is not possible.

Arbol EuroConsulting

1 Landford Close Rickmansworth WD3 1NG

35 Brookdene Drive Northwood HA6 3NS
TREE CONSTRAINTS PLAN

SCALE : 1 : 200 @ A3	DATE : 17/01/2025	N
MAP FILENAME : 101 958		

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

T2 B
T6 C
T3 C
T5 B
T4 C
T1 B
No. 35
1-2.5m high shrubs Holly, Rubus, Elonymus, Weigela
1.5-3.0m high shrubs Cotinus, Cherry Laurel & Pieris

KEY

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

5m 10m 15m
SCALE BAR

NOTES
1. The existing property is gray-shaded.
2. Trees T2, T3, T4 and T6 have been removed off plan to facilitate development.
3. The RPAs on both T1 and T2 are notional in that they should be squared-off and off-set away from the road but due to the adjacent subject property this is not possible.
4. Fenced off area (= CEZ) for the silver birch and snowy mespil trees.

Arbol EuroConsulting

1 Landford Close Rickmansworth WD3 1NG

35 Brookdene Drive Northwood HA6 3NS
TREE CONSTRAINTS PLAN

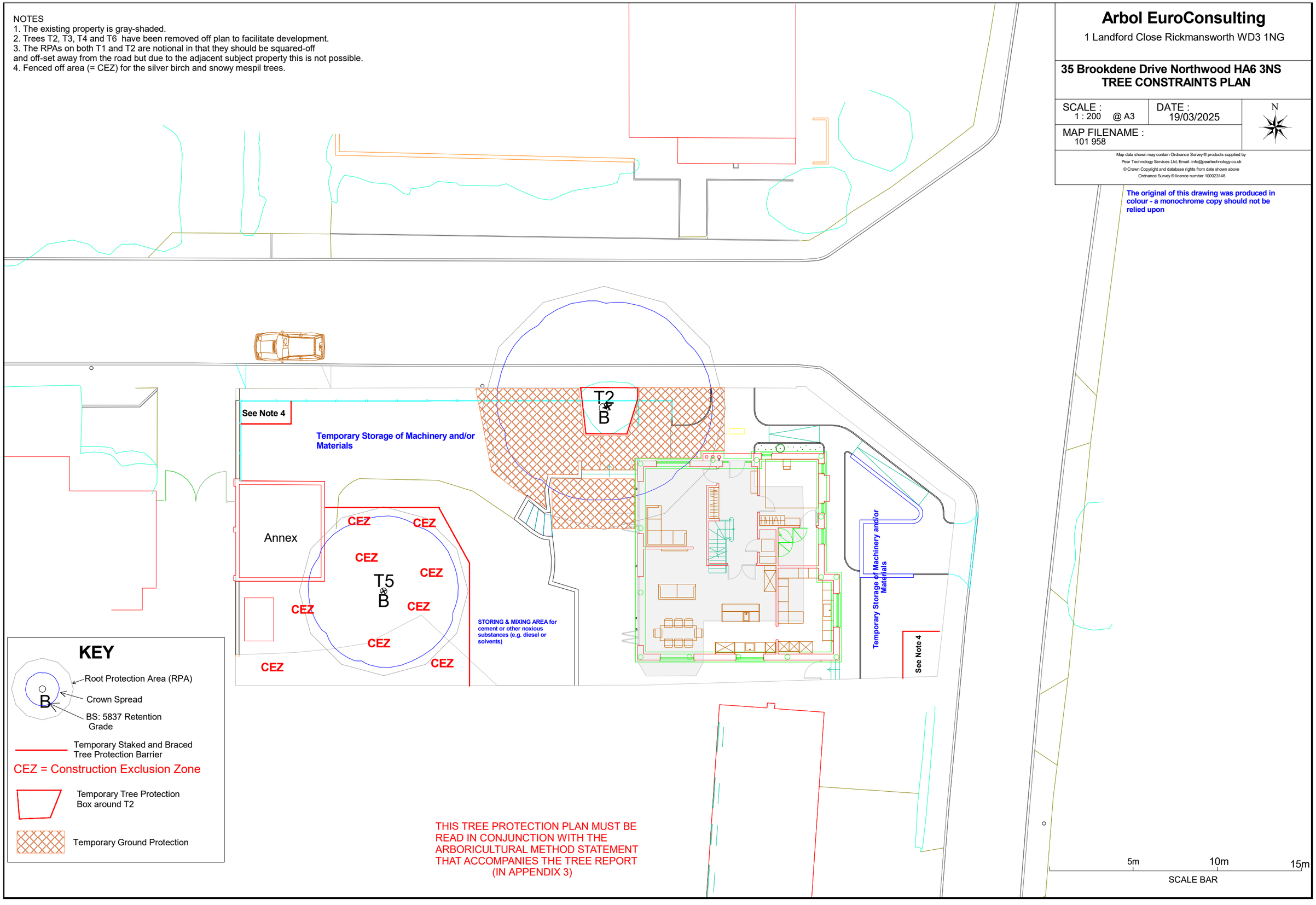
SCALE : 1 : 200 @ A3

DATE : 19/03/2025

MAP FILENAME : 101 958

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
- Temporary Staked and Braced Tree Protection Barrier
- CEZ = Construction Exclusion Zone
- Temporary Tree Protection Box around T2
- Temporary Ground Protection

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
SCALE BAR