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Arboricultural Impact Assessment (AIA)

Site Details: 11 Bayhurst Drive, Northwood, HA6 3SA

Prepared for: Mr. A & Mrs. A Patel

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Title: PAT_11BD_AIA_001

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Report Index

1.0 – Summary of Instruction

An Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* was commissioned by our client to be undertaken at 11 Bayhurst Drive, Northwood, HA6 3SA.

I have been instructed to provide an Arboricultural Impact Assessment (AIA) & tree protection strategy for a proposed development scheme at the above property.

The AIA seeks to demonstrate that proposed development work at the property will not significantly impact on the physiological health, or structural condition of retained on site and/or off site trees.

The AIA is also required to detail effective tree protection and control measures to be implemented at the site, to safeguard retained trees above and below ground level throughout all of the development phases.

The development scheme relates to the proposed:

- *House extension into the existing detached garage structure at ground floor level and conversion to habitable space;*
- *Loft extension/conversion/dormer;*
- *Associated internal refurbishments.*

The AIA process is followed in accordance with guidelines detailed in the British Standard *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* :

- Carry out a tree survey;
- Assess the quality and categorise surveyed trees at and adjacent to the site to ascertain their suitability for retention;
- Provide all relevant tree data including species identification, dimensions, life stage, condition assessments and make Preliminary/General Management Recommendations where necessary;
- Identify the potential above and below ground tree constraints posed to the development proposal, to assist the development team with conception, design and scheme feasibility, (i.e. A *Tree Constraints Assessment*);
- Undertake an Arboricultural Impact Assessment (AIA) to evaluate the potential direct and indirect effects of the proposed development scheme and associated construction activity on nearby significant trees (on and off site as applicable);
- Highlight the arboricultural implications that the development design and associated construction processes may have on retained trees;
- Provide tree protection information, methods, specifications and control measures to be employed at the site *(in conjunction with other specialist's input where necessary)*, as required to mitigate impact and safeguard the retained trees above and below ground level throughout all of the development phases;
- Produce findings of the AIA survey in a written report including a Tree Protection Plan (TPP) and an Arboricultural Method Statement (AMS) for submission to the Local Planning Authority for approval.

The British Standard Institute publication *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* is referred to throughout this report. This is a nationally recognised standard typically used by Local Planning Authorities to assess planning applications. It is frequently referred to in planning conditions to enforce protection or control of works that may be harmful to trees both on and off the site.

This report has been produced in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations '*for the sole use of our client (as detailed on the Title Page). Information provided by third parties for use in the preparation of this report is assumed to be correct. *(i.e. Proposed Site Plans, Construction Management Plans, Engineer Specifications etc).*

2.0 – Report Limitations

- *Assessments of all trees have been conducted using Stage 1 of the Visual Tree Assessment (VTA) method of inspection, as appropriate in enough detail to inform the development project. (See Sections 2.3 and 2.4).*
- *All observations of tree conditions were undertaken from ground level, a visual assessment of external features only from within the boundaries of the application site, assisted as required by the use of binoculars, a metal probe and a rubber mallet (used for audible resonance testing) where necessary. Below ground tree roots and buried parts were not inspected.*
- *The Tree Constraints Plan (TCP) and Tree Protection Plan (TPP) have been based on the Proposed Site Plan (Ref: A.03.1) provided by Architecture 100 | City Lofts, which is not based on a Topographical Survey.*
- *In lieu of a Topographical Survey, tree locations were added to the plans using measurements recorded at the time of the tree survey, as site conditions allowed.*
- *All measurements of tree heights, crown spreads and crown clearance from ground level are recorded to the nearest half metre for dimensions up to 10m and to the nearest metre for dimensions over 10m.*
- *Stem diameters are measured to the nearest 10mm, or where obscured / inaccessible, estimated based on the visible features and characteristics of the tree in question.*
- *Stem diameter measurements were recorded in accordance with methods detailed in Annex C (fig.C.1a-C.1f) as applicable for each individual tree and adjusted in accordance with Table D.1 of Annex D in BS 5837:2012 as required.*
- *Detailed background information is not known concerning the past history of the site, the soil type, geology or hydrology of the environs. No inspection material has been acquired by Tree Sense Arboricultural Consultants for assessment and no soil analysis information has been provided by third parties.*
- *Tree Sense Arboricultural Consultants cannot be held responsible for property damage arising from soil shrinkage or heave issues related to the retention or removal of trees on site.*
- *The AIA is only concerned with arboricultural issues and the safeguarding of retained trees against potentially adverse development impact. Other disciplines such as engineering and ecology may also be mentioned where relevant.*
- *The author of the AIA report 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 must be sought to clarify/confirm any observations on engineering or legal matters that this report may contain.*
- *The tree management recommendations made in this report relate to the assessment of the trees and their surroundings at the time of inspection and in some cases, may be recommended within the context of facilitating the development proposal and the end land use. The tree survey undertaken is not a full tree risk assessment, but carried out as appropriate in enough detail to inform the development proposal.*
- *Weather conditions were dry and overcast, with light rain on the day of the tree survey (6th November 2025).*
- *Where a tree is subject to a Tree Preservation Order (TPO) and/or stands within a designated Conservation Area, it will be necessary for the tree owner or his/her appointed agent to ensure appropriate compliance with planning requirements, before any recommended, non-urgent treatments can be undertaken. (See Section 12.0).*
- *BS 5837:2012 does not make a distinction between trees which are subject to statutory protection, such as a TPO, and those trees without. This is principally because all trees are a material consideration and full planning consent overrides any TPO protection. Therefore, we do not seek to offer any comparison between, or imply any difference in the quality or importance of trees covered by a TPO and other trees which are not statutory protected.*
- *The AIA report is provided to detail impartially the potential tree constraints posed to the development proposal as identified at the site and detail the tree protection measures and methodologies to be employed, in the interest of safeguarding the short and long term health of significant retained trees.*
- *The provision of the AIA does not guarantee that the associated Local Planning Authority (LPA) will agree with the opinion of the Consulting Arboriculturist, or grant planning consent based on the content and findings of the AIA report.*
- *This report is compiled into a single PDF file designed for electronic release. If printing this document, please note that the plan drawings may be a different size or orientation to the standard A4 / portrait of the rest of the report. Some PDF reader software may also automatically adjust the size of drawings included in this report. It is the responsibility of the user to ensure that resulting prints are to scale and that the scale bars on the plans measure correctly.*
- *The Tree Constraints Plan (TCP) and Tree Protection Plan (TPP) are drawn to the scale indicated in Sections 8.1 and 9.1.1 respectively and feature a scale bar on the drawings for cross reference and scaling purposes.*
- *All third party information supplied for use in the AIA report (particularly Site Plans) are assumed to be correct in terms of accuracy and scaling, unless indicated otherwise. (I.e Informative foundation drawings).*

2.1 – Time Limits

It should be understood that trees are not static objects, but growing, living organisms; and their condition, size and relationship to buildings and other trees can change significantly and sometimes unpredictably over the course of a full growing season and periods of dormancy. Trees can also be affected by pathogen attack and react to seasonal weather events, particularly strong wind conditions which have become more frequent in recent years.

Therefore, this report is given a validity period of 12 months from the date of publication and is subject to any suggested management recommendations being undertaken within the correct time frames.

A re-assessment tree inspection survey will be necessary to enable re-validation of the AIA report if required after the 12 month expiry date of this publication. Additional fees for re-assessment surveys and report re-validation will apply.

2.2 – Severe Weather Limitations

Impacts of severe drought, storm, inundation, land slip or subsidence are not covered by this report.

2.3 – Tree Safety Matters / Tree Risk Assessment

The Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 (Trees in relation to design, demolition and construction - Recommendations)* 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 and adjacent (if applicable) to the site is of a preliminary nature and sufficient only to inform the current development proposal. The tree assessment is carried out from ground level as is appropriate for this type of survey, without invasive investigation and is not a full Tree Risk Assessment.

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. As such, General Management Recommendations (GMR) or Preliminary Management Recommendations (PMR) may be made regarding the assessed trees, in accordance with published best practice tree management guidelines and methodologies.

2.4 – Visual Tree Assessment (VTA)

The Visual Tree Assessment (VTA) method of inspection is an internationally recognised tree hazard assessment method developed by Prof. Claus Mattheck: *Body Language of Trees – a handbook for failure analysis (HMSO, 1994).*

The basis of VTA is the identification of (external) symptoms which a tree produces in reaction to a weak spot or area of mechanical stress. These can then be interpreted in terms of potential direct impact hazard features within a tree.

The VTA method of inspection does not allow for opinions to be made concerning the risk of a trees potential to cause indirect impact on nearby structures. Indirect impact refers to potential problems caused by changes in soil moisture content in shrinkable soils (i.e. those soils with a high clay content); to which trees can be a contributing factor.

The tree inspection survey undertaken at the above site was conducted in accordance with Stage 1 of the VTA process, as appropriate to inform the development proposal.

If required following the Stage 1 VTA, it may be necessary for trees to undergo further investigation to ascertain in greater detail their physiological health and structural integrity before determining their safe retention. (See Section 5.2).

3.0 – Process

The Arboricultural Impact Assessment (AIA) in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* was commissioned to be undertaken as part of the initial feasibility study at the planning stage of the process and seeks to provide supporting arboricultural information to the planning application.

Additionally, the AIA report is to be retained and used by on site contractors and any related third parties, for instructions relating to the installation and management of tree protection apparatus at the site and control measures to be followed during all construction operations.

The elements of the AIA at the initial Tree Constraints Assessment stage were:

- To undertake the tree survey;
- Categorise the trees;
- Identify the above and below ground tree constraints posed to the development, with a view to assisting with the conceptual design and feasibility of the proposal from an arboricultural perspective.

The identified tree constraints are to be used to inform and assist with the scheme design, including advising on any necessary engineering solutions and demolition/construction methods which may need to be employed to mitigate potential damage to retained trees in the short and long term, both above and below ground level.

The identified tree constraints will also later assist in determining the specification and positioning of all physical tree protection measures to be employed at the site, as required to safeguard retained trees above and below ground level throughout the development process to completion.

Following the identification of tree constraints, the AIA evaluates the identified direct and indirect effects of the proposed design in relation to nearby trees. The assessment will consider the effect of any tree loss or damaging activities proposed in the vicinity of retained trees. Activities such as:

- *Removal of existing structures or hard surfacing;*
- *Installation of new hard surfacing;*
- *The location and dimensions of all proposed excavations or alterations in ground levels;*
- *Construction of any new structures above ground level;*
- *Construction or alterations to any below ground utility infrastructure (i.e. for drainage, water, gas, electricity etc.).*

In addition to the permanent works, account should be taken to the buildability of the scheme in terms of access, plant machinery use, waste management, adequate operational space and provision for the storage of materials including topsoil, without inflicting damage to the retained trees. Post development pressure on nearby trees is also closely considered and assessed.

As well as an evaluation of the extent of the impact on existing trees, the AIA includes and details within this document:

a) The tree survey data;

b) Trees selected for retention, clearly identified (e.g. by number) and marked on a plan with a continuous outline or similar;

c) Trees to be removed, also clearly identified (e.g. by number) and marked on a plan with a dashed outline or labelled / detailed as appropriate;

d) Trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or detailed as appropriate;

e) Areas designated for structural landscaping that need to be protected from construction operations in order to prevent the soil structure being damaged;

f) Evaluation of impact of proposed tree losses (if applicable);

g) Evaluation of tree constraints and production of a draft tree protection plan including details of tree protection measures;

h) Issues to be addressed by an arboricultural method statement where necessary in conjunction with input from other specialists associated with the project.

4.0 – General Site Observations

The property at 11 Bayhurst Drive features a detached house, with an adjoining double length garage on the west side, which is separated by a covered side access passage between the house and garage, providing access from the front driveway into the rear garden. The garage structure appears to adjoin the house at first floor level.

A block paved driveway surface features in front of the garage structure, with parking space available for one family sized vehicle.

The front garden appears shared with the neighbouring property to the east (12), which is lawn surfaced.

The west side access passage is paved and leads directly into the rear garden, with the paving continuing along the eastern elevation of the garage which extends beyond the the rear elevation of the house along the west side of the garden. A small paved path and patio area feature off of the rear elevation of the property.

The main rear garden area is broadly rectangular, of a level topography and predominantly lawn surfaced, with a neatly trimmed and managed coniferous hedge line of approx 2m in height made up of primarily Leyland Cypress trees dictating the east side boundary line with the rear garden of number 12.

The western boundary line to the south of the garage structure is dictated by a collection of mixed species and unremarkable shrubs and plants, with the boundary with the rear garden of number 10 seemingly defined by fence posts and low, broken wire fencing seen amongst the shrubs.

The rear (southern) boundary is dictated by wire link fencing, with school grounds beyond the boundary.

In terms of significant trees recorded for the purposes of the Arboricultural Impact Assessment (AIA), no significant individual trees are present within the curtilage of the application site, with the exception of those trees which make up the coniferous hedge line along the eastern rear garden boundary line. Approx. 20 individuals seem to make up the collective hedgeline, from what could reasonably be observed.

Off site trees however, are present within the residential rear gardens to the west and east and within the school grounds beyond the southern boundary. Off site trees deemed to potentially pose a constraint to the proposal due to their size and proximity to the application site were identified and recorded for the purposes of the AIA, based on *BS 5837:2012* guidelines.

Details of the individual trees surveyed for inclusion in the AIA can be found in the Individual Tree Data Table in Section 5.0 below, with tree groups recorded in Section 5.1 and additional tree data notes provided in Section 5.2.

5.0 – Individual Tree Data

Tree No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)	First Significant Branch Height and Direction of Growth (m)	Canopy Height (m)	Life Stage	General Comments Inc. Physiological and Structural Condition	Preliminary / General Management Recommendations (PMR / GMR)	Estimated Remaining Contribution (Years)	Category
T1	Lawson Cypress	10	1 – 150 2 – 100 (Est.) SE - 175	N – 1 E – 1 S – 1 W – 1	3 – N	2.5	Y	Physiological Condition – Fair* Structural Condition – Fair* **Visible part of the tree stem and crown only from within the rear garden of the application site.* Co-dominant stems at 1.5m (2) Sparse live foliage cover with some notable browning off of foliage. Lower crown dieback of branches on the south and east sides. Off site tree in the rear garden of neighbouring property to the west. No access available to enter the site to closely inspect the tree or measure stem diameters. (Hence estimated).	_	<10	C 2
T2	Lawson Cypress	10	200 (Est.)	N – 1 E – 1 S – 1 W – 1	3 – N	2.5	Y	Physiological Condition – Normal* Structural Condition – Fair* **Visible part of the tree stem and crown only from within the rear garden of the application site.* Co-dominant stems at 1.5m (2) Live foliage cover more typical for the species compared to T1. Lower crown dieback of branches on the north and east sides. Off site tree in the rear garden of neighbouring property to the west. No access available to enter the site to closely inspect the tree or measure stem diameters. (Hence estimated).	_	10+	C 2

Tree No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)	First Significant Branch Height and Direction of Growth (m)	Canopy Height (m)	Life Stage	General Comments Inc. Physiological and Structural Condition	Preliminary / General Management Recommendations (PMR / GMR)	Estimated Remaining Contribution (Years)	Category
T3	Common Ash	12	1 – 250 2 – 100 3 – 150 (Est.) SE - 300	N – 3 E – 4 S – 4 W – 4	5 – S	5	Y	Physiological Condition – Fair* Structural Condition – Fair* **Visible part of the tree stem and crown only from within the rear garden of the application site. Lower stem(s)* obscured behind 2m high timber fencing and barrier plants within the school grounds. Assumed co-dominant stems (3) at 1.5m. Lower 2m of the stem(s) obscured from view by 2m high timber board fencing within the school grounds. Minor sized deadwood within the crown framework. Off site tree in the school grounds beyond the south boundary. No access available to enter the site to closely inspect the tree or measure stem diameters. (Hence estimated).	_	10+	C 1
T4	English Oak	12	800 (Est.)	N – 5 E – 5 S – 5 W – 5	5 – S	5	SM	Physiological Condition – Normal* Structural Condition – Good* **Visible parts of the tree stem and crown only from within the rear garden of the application site. Lower stem* obscured behind 2m high timber fencing and barrier plants within the school grounds. Crown appears recently reduced, estimated within the last 2-5years and is well balanced. Off site tree in the school grounds beyond the south boundary. No access available to enter the site to closely inspect the tree or measure stem diameters. (Hence estimated).	_	20+	B 1

Tree No.	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)	First Significant Branch Height and Direction of Growth (m)	Canopy Height (m)	Life Stage	General Comments Inc. Physiological and Structural Condition	Preliminary / General Management Recommendations (PMR / GMR)	Estimated Remaining Contribution (Years)	Category
T5	Walnut	8	250 (Est.)	N – 1 E – 2 S – 4 W – 4				Physiological Condition – Normal* Structural Condition – Fair* **Visible parts of the tree stem and crown only from within the rear garden of the application site. Lower stem* obscured behind 2m high timber fencing and dense Ivy growth. Growing tight to the boundary fencing beyond the southern boundary of the rear garden at number 12. Stem obscured from view below 2m by timber fencing and dense cascading Ivy attached to the fencing. South-west crown growth bias, likely due to suppression by an old dominant tree within the garden over the years of its growth. (Large, old stump at ground level visible immediately adjacent to the north of T8). Off site tree in the school grounds beyond the south boundary. No access available to enter the site to closely inspect the tree or measure stem diameters. (Hence estimated).	–	20+	**B 1**

5.0.1 – Key to Table 5.0

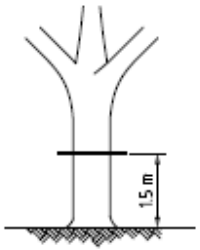
1) **Height** describes the height of the tree from the base of the trunk/stem in metres.
2) **Stem Diameter** is the diameter of the trunk in millimetres, measured at 1.5m from ground level. For multi stemmed trees, a single stem diameter equivalent (SE) is calculated and indicated beneath the measurements of each separate stem. (Est.) indicates the stem diameter was estimated due to the tree being obscured and/or inaccessible to physically measure.
3) **Branch Spread** is the average length of branch spread from the centre of the tree in the direction of each cardinal point of the compass in metres.
4) **First Significant Branch Height and Direction of Growth** – Clearance height from the ground of the first major structural branch of the trees' crown and its direction of growth.
5) **Canopy Height** is the distance between the lowest visible canopy branches and ground level in metres.
6) **Life Stage** is represented as: Y= Young (*in first third of life expectancy*), SM = Semi Mature (*in second third of life expectancy*), M= Mature (*final one third of life expectancy*). Trees considered to be beyond their likely life expectancy are normally classed as OM = Over Mature or V = Veteran. D = Dead Tree
7) **Physiological Condition** relates to the vitality of the tree,
   Structural Condition relates to the mechanical integrity of the tree and assesses the presence of structural defects. *(i.e. dead branches, cavities, splits, cracks, included bark etc.)*
8) **Estimated Remaining Contribution** is an estimate of the minimum remaining contribution of the tree,based on its condition and life stage at the time of assessment..
9) **Preliminary Management Recommendations (PMR)** detail any additional arboricultural practices to be undertaken, such as Stage 2/3 VTA, or climbed/aerial inspections.
   General Management Recommendations (GMR) may also be indicated and relate to tree surgery management works which are recommended in respect of good tree management and are not made in the context of a potential development project. (See Section 5.2).
10) **Category grading** is based on tree categorization guidelines provided in The British Standard *BS 5837:2012 Trees In relation to design, demolition and construction - Recommendations* (See 6.0 below).

- **Major deadwood =** over 25mm diameter, **Minor deadwood =** under 25mm diameter.
- **CODIT** – (*Compartmentalisation of Decay in Trees*).
- **PMR =** Preliminary Management Recommendation - i.e. VTA Stage 2/3, semi invasive tree condition investigations (Tomography/Resistograph testing etc.) or climbed/aerial tree inspection.
- **GMR =** General Management Recommendation – i.e. Tree surgery management works (pruning, felling etc, including Access Facilitation Pruning). ***For on site trees which are under the management control of the applicant.***
- **GMR ADVISORY =** *General Management Recommendation – i.e. Tree surgery management works (pruning, felling etc, including Access Facilitation Pruning).* ***For off site trees which are NOT under the management control of the applicant.***

Stem diameter measurements:

T2, T4 and T5 are single stem trees measured at 1.5m. As such, stem diameter measurements were taken (estimated*) at 1.5m above ground level, based on the measuring method shown in *Fig. C.1a in Annex C of BS 5837:2012*, as required.

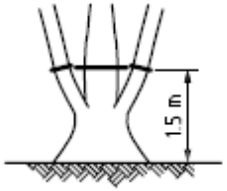
**N.B. Estimated due to being off site and visibility of lower stem obscured.*



a) Stem diameter measured at 1.5 m above ground level

T1 and T3 feature more than one stem at 1.5m above ground level. As such, a single stem equivalent has been calculated and recorded for these trees, based on the measuring method shown in *Fig. C.1f in Annex C of BS 5837:2012*, as required.

**N.B. co-dominant stem measurements were estimated due to being off site and visibility of lower stem(s) obscured.*



f) Measurement of a tree with more than one stem at 1.5 m above ground level

5.1 – Tree Groups

The following information relates to trees assessed and recorded as a collective, rather than individually due to the numerous individual trees which make up the groups.

In the case of regularly maintained domestic hedges and the majority of shrub masses, it will normally be sufficient to record their height and species on the tree survey plan or note these in the schedule. Hedgerows and substantial internal or boundary hedge (including evergreen screens) should be recorded in a similar fashion to groups, with the lateral spread and average (or maximum and minimum) height and stem diameter ranges recorded, to allow the potential constraints associated with the features to be fully assessed.
(BS 5837:2012 – Sections 4.4.2.7 & 4.4.2.8).

Group 1 (G1)

Group one consists of approximately 20 Leyland Cypress trees which make up a hedge group along the east side boundary of the rear garden.

Avg. Height: 2m

Avg. Stem Diameter: 100mm

Avg. Crown Spread: 0.5m

Age Class: Y

Physiological Condition: Fair

Structural Condition: Good

Group Category Grading: **B 2**

Comments.

Some browning of foliage noted along the length of the hedge on the west facing side, likely attributed to trimming too often beyond live growth points and possible effects of drought stress.

The hedge line currently ends abruptly short of the rear (south) boundary, with a gap of approx, 2m between the southern end of the hedge and the rear boundary. As such, the hedging does not provide full enclosure from the rear garden of the neighbouring property (12) garden.

Access from the east side passage is currently not possible, due to the G1 hedging growing tightly up to the rear elevation of the house and blocking access and use of the side passage.

The G1 hedge line is proposed to be removed and replaced with new timber board fencing as part of the development plans, which include opening up the access passage along the eastern side elevation of the house, due to the existing west side passage being lost when the house/garage extensions are completed.

5.2 – Tree Data Notes

The trees detailed individually in Section 5.0 and as groups in Section 5.1, are those which were considered in the Arboricultural Impact Assessment (AIA).

*General Management Recommendations – (GM*R) for tree surgery works may have been made in the interest of good tree management and are not necessarily required in relation to the proposed development project.

Preliminary Management Recommendations – (PMR) may have been made where *further investigation into tree health and condition is required before a decision can be made concerning the safe retention of a tree.

**Further investigation normally refers to (but is not restricted to):*

- *Stage 2/3 of the Visual Tree Assessment (VTA) process, which involves semi invasive testing with Tomography, Resistograph and Fractometer equipment on areas of the tree where a significant internal structural defect is suspected following the Stage 1 VTA.*
  Stage 2/3 VTA can determine in much greater detail the extent and severity of suspected internal wood decay and/or structural defects and also determine the strength of supporting wood tissue.

- *Recommendations for a climbed/aerial inspection to be undertaken, to assess the upper sections of the tree stem or crown, where a significant structural defect is suspected but could not be quantified during the Stage 1 VTA undertaken from ground level.*

Any tree surgery work recommended must be undertaken following the correct procedures relating to trees protected by Tree Preservation Orders (TPO), or which are growing within a designated Conservation Area, where applicable to both on site and off site trees. (See Section 12.0).

Any *General Management Recommendation (GMR)* which may have been made to remove hazardous trees, deadwood from crowns, or removal of invasive climbing vegetation (such as Ivy) from TPO or Conservation Area trees does not require permission from the Local Authority before actioning. However, it is considered good practice to inform the Local Authority of any intended emergency tree removals and/or deadwood and Ivy removal works. In the case of complete tree removal emergencies, taking before and after photographs is strongly recommended.

Advisory GMRs are made if any works are recommended to be undertaken to off site trees which are outside of the management responsibility of the applicant.

Advisory GMRs must also be permissible by the tree owners, except in situations where Common Law allows. (The Statutory Protection process as above still applies where relevant).

Advisory GMRs are made in the interests of good tree management and should be brought to the attention of those who own or have the responsibility to manage the trees concerned.

All recommended tree work must be undertaken in accordance with guidelines set out in *BS 3998:2010 Tree work – Recommendations (As updated). (See Section 10.3).*

The following sections provide information regarding the categorisation of the surveyed trees and the tree constraints which have been identified at the site.

6.0 – Tree Categorisation

The purpose of Tree Categorisation as detailed in *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, is to identify the quality and value of existing tree stock, allowing informed decisions to be made concerning which tree(s) should be retained or removed should development occur. This process is the starting point of the tree survey, following a land survey and should ideally, be undertaken before any site design or layout is proposed.

Trees are given a category grading based on individual tree assessment, in line with the categorisation methodology as detailed in Table 1 of *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.* Table 1 is reproduced as an informative below:

Table 1 **Cascade chart for tree quality assessment**

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

To easily identify the category grading for each tree assessed for inclusion in the AIA, all tree identification numbers on the Tree Constraints Plan(s) and Tree Protection Plan(s) are shown in a colour which represents the tree's category grading. Table 2 below, again reproduced from *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, details the identification colours to be used for each category grade:

Table 2 **Identification of tree categories**

Category (from Table 1)	Colour [A)]	RGB code [A)]
U	Dark red	127-000-000
A	Light green	000-255-000
B	Mid blue	000-000-255
C	Grey	091-091-091

[A)] Colours verified against http://safecolours.rigdenage.com/palettefiles.html#files [viewed 2012-03-26].

Once it has been established which trees can and are suitable to remain and are worthy of retention, necessary measures to protect them throughout the course of the development project must be undertaken.

7.0 – Tree Constraints

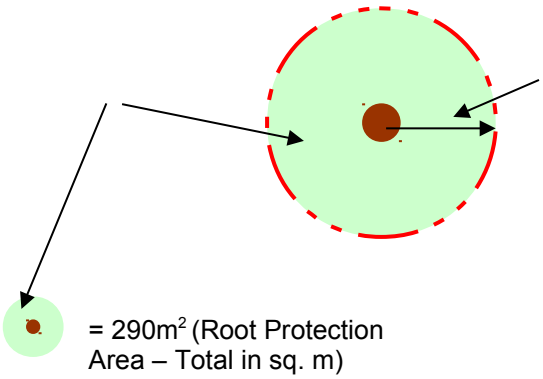
The tree constraints are the influences the trees will have below and above ground level in relation to the development proposal and are to be used to inform the design process in establishing a scheme which does not cause adverse impact to trees above or below ground level, including trees which are outside the site boundaries.

The below ground constraints are represented by the trees Root Protection Area (RPA), the above ground constraints are represented by the trees size and position, including shading dominance caused by crown density and branch spread, which may affect light into newly developed or extended buildings. The physical constraints posed by trees and their crown branching in relation to new proposed structures and construction apparatus (such as scaffolding) must also be also closely considered.

Post development pressure on trees is also an important factor to be considered in the scheme design process. The future requirements for tree management and frequencies of tree surgery works in relation to the new property layout are to be a key consideration.

7.1 – RPA (Root Protection Area) – (Below Ground Constraints)

The nominal RPA radius is taken from the centre of the tree stem, encircling the tree to give the RPA Area (*example based on T4 shown below*) **:



9.6m from the centre of the tree stem = (Root Protection Area - Radius)

= 290m^2 (Root Protection Area – Total in sq. m)

** Tree root systems do not necessarily show the symmetry indicated in the above example, the development of all roots is influenced by the availability of water, nutrients, oxygen and soil penetrability. As far as these conditions allow, the root system tends to develop sufficient volume and area to provide physical stability.

The following table indicates the calculated Root Protection Areas (RPA) for the trees which were assessed as part of the Arboricultural Impact Assessment (AIA).

The RPAs have been calculated using stem diameter measurements (taken at 1.5m above ground level) collected at the time of the tree survey and are detailed in Table 5.0.
RPA calculations are made using formulae detailed in *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* – Section 4.6 and Table D.1.

Tree No. (Category colour coded)	RPA Radius (m)	RPA Area (m^2)
1	2.1	14
2	2.4	18
3	3.6	41
4	9.6	290
5	3	28
G1	1.2	5

7.2 – Above Ground Constraints

The above ground constraints caused by tree heights and the spread of branches can pose constraints to the development project in respect of demolition work, new building design, position and operational space requirements.

For example, if the lateral branch spread of a tree extends into areas where development activity is likely, there is a risk of potential direct impact from site machinery, installation of scaffolding and other construction related activities on the tree crowns which may cause damage to limbs and branches.

Tree stems and exposed buttress roots are also above ground constraints which need to be considered in respect of possible impact damage to them. Post development pressure is also of material consideration in respect of future tree pruning requirements and frequency following completion of the development.

Shading issues should also be considered in respect of tree size, form and position in relation to the proposed new structure and end use.

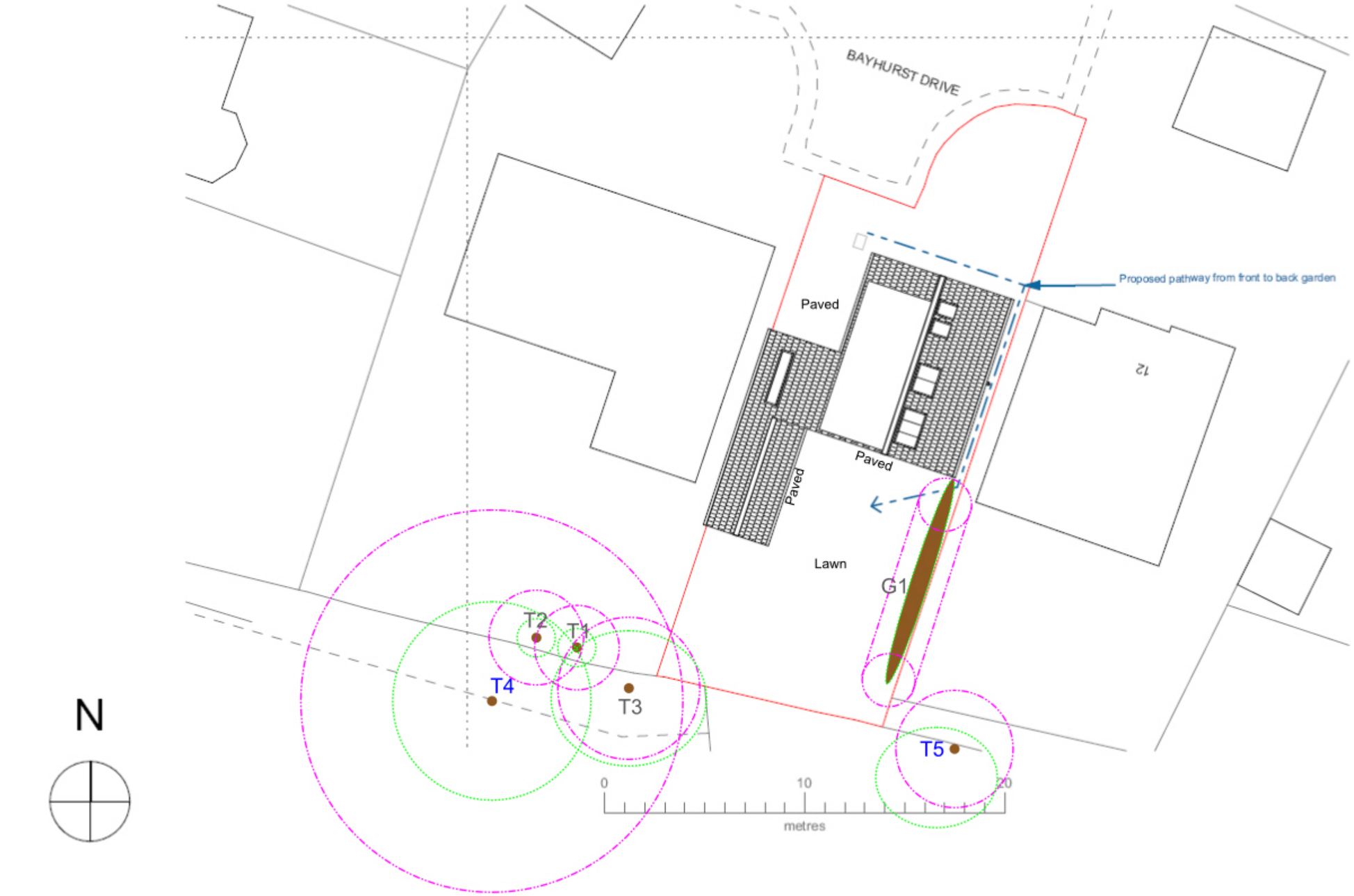
Species characteristics such as density of foliage, and whether trees are deciduous or evergreen are important factors to consider in respect of shading issues, which may affect light levels into new or extended buildings.

Any proposals for above ground service installations such as telecommunication cables should also be considered with close reference to the above ground constraints posed by the trees at the development site, their location and their crown spreads.

N.B. Existing above ground services infrastructure must also be considered in respect of the likely site related activity occurring around them. (I.e overhead cables and the use of skip lorry lifting gear / cranes / booms / jibs etc), particularly if access facilitation tree pruning works are likely to be required to allow certain operations to be undertaken.

The Tree Constraints Plan (TCP) in Section 8.0 below indicates the above and below ground constraints of all relevant trees at and adjacent to the site, with comments relating to the identified constraints in Sections 8.1 and 8.2. Canopy heights (ground clearance) and crown spread measurements are recorded in the Individual Tree Data Table in Section 5.0.

8.0 – Tree Constraints Plan (TCP)



TREE NUMBER COLOUR CODING:	KEY TO SYMBOLS:
RED = CATEGORY U GREEN = CATEGORY A BLUE = CATEGORY B GREY = CATEGORY C	= Calculated Root Protection Area (RPA) = Crown Spread (N, E, S, W)

8.1 – Tree Constraints Plan (TCP) Notes:

The Tree Constraints Plan (TCP) in Section 8.0 is shown to approximate 1:200 scale @ A3 based on the Proposed Site Plan (Ref: A.03.1) provided by Architecture 100 | City Lofts.

The TCP is provided only to indicate the position, category and numbering of the surveyed trees and provide an indication of the identified tree constraints by showing a graphic of the calculated Root Protection Areas (RPA) and tree crown spreads. The TCP is for use to assist in the scheme design and determine the arboricultural feasibility of the proposal.

RPA measurements can be found in the RPA table in Section 7.1, crown spread measurements can be found in Table 5.0 above.

Using the formula described in *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* (Section 4.6 of the standard), the calculated RPA should be shown as a nominal circle on the Tree Constraints Plan with a radius based on 12 times the stem diameter for a single stem tree.

8.2 – Tree Constraints Assessment

The identified constraints shown on the Tree Constraints Plan (TCP) in Section 8.0 were established following the tree survey, using data collected at that time.

The tree constraints are to be used to assist with final design decisions, assess the arboricultural feasibility of the proposal and ensure the protection of trees in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The identified constraints are a primary factor in determining the layout of physical tree protection measures such as temporary barriers to create the Construction Exclusion Zones (CEZ) and ground protection apparatus at the site as necessary.

The tree constraints assessment section outlines how existing trees might impact on or be adversely affected by the proposed development and associated demolition/construction works.

According to BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations, the tree constraints assessment should consider the Root Protection Areas (RPAs), canopy spread, and any other features that could limit development or require specific protective measures.

This section outlines the identified constraints presented by the trees surveyed on and adjacent to the site in relation to the development proposal following the tree survey undertaken on the 6th November 2025:

Root Protection Areas (RPAs)

Root Protection Areas (RPAs) have been calculated for each tree in line with *BS5837:2012* guidelines. The RPA is represented as a circular area, centred on the tree, indicating the soil volume required for tree stability and vitality. Development activities should avoid encroaching upon these RPAs to protect the tree's root structure and rooting environment.

Canopy Spread and Overhang

The canopy spread for each surveyed tree has been documented, and areas where canopy overhang may impact proposed structures are identified. Recommendations may include pruning or design alterations to avoid conflicts and prevent the need for regular canopy management.

Tree Categories and Constraints (Using *BS 5837:2012* Categories)

Trees on site have been categorized according to *BS 5837:2012* criteria. Category A trees (high-quality), Category B trees (moderate quality) and Category C trees (low quality). All retained trees will warrant suitable protection throughout the course of the development. Category U trees (those unsuitable for retention) are recommended for removal.

Constraints on Development Layout

The layout of the proposed development has been designed to avoid incursion or impact on RPAs and canopy spread of retained trees.

Recommendations and Mitigation Measures

To mitigate the impact on retained trees, temporary protective fencing is recommended to prevent all site related access to RPA sectors which encroach inside the application site boundaries during construction.

Temporary ground protection measures are not required as all RPA sectors can be wholly excluded by CEZ fencing without restriction to site access and operations

Conclusion

In summary, careful consideration of tree constraints has informed the proposed design to minimize impact on retained trees. Protective measures outlined in this report are essential for safeguarding tree health throughout the development process, ensuring compliance with BS 5837:2012 standards.

8.2 – Tree Constraints Assessment – Cont'd

Below Ground Constraints – (*House extension into the existing detached garage structure at ground floor level and conversion to habitable space;*

N.B. The RPAs shown for retained trees are indicated on the Tree Constraints Plan (TCP) by a nominal circle around each tree. The circle is based on the RPA radius, as calculated using the stem diameter measurement for each tree, taken at 1.5m above ground level. RPA calculations for all assessed trees can be found in Section 7.1 above.

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - The eastern boundary coniferous hedge line (G1) is to be removed prior to commencement of the development works.

  - The development works proposed to incorporate the house with the garage at ground floor level to increase habitable space within the home, will close off the existing access passage between the structures on the west side of the site.

  - The works will not involve the extension of the existing buildings footprints southwards.

- **Controls:**
  - Physical barrier fencing to be installed to the layout shown on the Tree Protection Plan (TPP) in Section 9.1, using the measurements annotated on the plan. (See Tree Protection Sections, 9.0 to 10.1).

  - The G1 hedge line is to be removed to ground level and the stumps removed using a stump grinder, in preparation for installing new fence posts and panels for the new boundary line fencing. (See Tree Surgery Works Section 8.3.1).

Below Ground – Root Protection Area (RPA) Incursion – (Utility Services – new or altered)

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - At the time of writing, no trench excavations for new or alterations to existing utility services infrastructure are proposed where tree RPAs will be affected.

- **Controls:**
  - None at the time of writing.

8.2 – Tree Constraints Assessment - Cont'd

Below Ground – Root Protection Area (RPA) Incursion - (New outside hard and soft landscaping)

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - New hard and soft landscaping works are not proposed.
  - The new boundary line fencing proposed along the east side boundary of the rear garden (following the removal of the G1 hedge line) will not impact retained tree RPAs.

- **Controls:**
  - No special control measures required.

Below Ground – Root Protection Area (RPA) Incursion - (Site access & operations)

- **Trees Affected:**
  - T3 and T4.

- **Arboricultural Impacts:**
  - Soil compaction inside RPAs – by plant machinery and/or pedestrian movements/site operations;
  - Soil compaction inside RPAs by storing bulk building materials;
  - Soil contamination inside RPAs – *(contaminate waste storage, spilt contaminate substances).*

- **Comments:**
  - RPA sectors for T3 and T4 have been calculated to extend marginally inside the application site boundaries at the south-west corner of the rear garden.
  - (See Tree Constraints Plan (TCP) in Section 8.0).

- **Controls:**
  - *(Refer also to the Tree Protection Plan (TPP) in Section 9.1 and Arboricultural Method Statement (AMS) in Section 10.1).*
  - Site access will be via the existing front driveway crossover which will remain unchanged.
  - Physical barrier fencing to create a Constriction Exclusion Zone (CEZ) in the south-west corner of the rear garden is to be installed prior to commencement of the development.
  - The CEZ fencing is to be installed using the measurements annotated on the Tree Protection Plan (TPP) in Section 9.1.
  - The CEZ fencing has been positioned to wholly exclude the RPA sectors for T3 and T4 which extend marginally inside the application site boundaries.
  - The CEZ fencing is required to prevent all site related access and operations occurring inside the RPAs within soft landscaped areas.
  - Site access and operations will not be restricted by the installation of the CEZ fencing.
  - **The required CEZ fencing specifications are detailed in Section 9.2 and in the Arboricultural Method Statement (AMS) in Section 10.1 below.**

8.2 – Tree Constraints Assessment - Cont'd

Below Ground – Root Protection Area (RPA) Incursion - (Site access & operations) - Cont'd

- Suggested areas designated for material storage and preparation (i.e. Site Compound Areas) are indicated on the Tree Protection Plan (TPP) in Section 9.1. NO SITE ACCESS, STORAGE/PREPARATION OF MATERIALS, OR WASTE STORAGE IS PERMITTED INSIDE THE FENCED OFF CEZ AT ANY TIME.

- A Construction Management Plan (CMP) was not available to consider or reference at the time of writing.

- All Construction Exclusion Zone (CEZ) fencing must be fully installed at the start of the project, prior to commencement of any development works, including bringing tools, equipment, machinery and building materials onto the site.

- **The CEZ fencing must be the first apparatus installed during site set up and remain undisturbed throughout the course of all development phases to completion.**

- (See Tree Protection Sections 9.0 – 10.1).

Above Ground – Crown heights / Crown Spread - (New structures above ground level)

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - The proposed loft conversion works including the dormer construction will not impact on any tree crowns, including for the installation of scaffolding.

  - Crown spreads of all retained trees do not pose an above ground constraint to the proposed house/garage development.

  - Crown spreads of retained trees do not pose a constraint to the installation and use of scaffolding or other construction infrastructure required to be utilised around the buildings.

- **Controls:**
  - No special control measures required.

8.2 – Tree Constraints Assessment - Cont'd

Above Ground – Crown heights / Crown Spread - (The use of cranes, booms/jibs, skip lorries)

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - At the time of writing, no cranes are confirmed to be in use at the site during the development phases.

  - A construction Management Plan (CMP) was not available to consider or reference at the time of writing.

  - Should a crane be employed at the site, it is to be sited outside of all tree RPAs and must be located to ensure the travel path of the boom including any loads being carried can operate safely without coming into contact with tree crowns. All crane operations must also be supervised at all times by a Banksman.

  - It is typical for plant such as mechanical diggers and dumpers with extending booms/jibs to be in operation on most construction sites and as such; the use of this type of plant machinery is expected to be in frequent operation.

  - No tree crowns will be affected by plant use of this specification around the development area, which will all be outside of the site boundaries or in the case of T3 excluded behind the installed CEZ fencing.

  - Adequate space is available on the west side of the site on the front driveway for skips to be sited.

  - Skips can be safely located on the west side of the site on the driveway in the recommended front Site Compound Area (SCA) as shown on the Tree Protection Plan (TPP) in Section 9.1.

  - No trees are present near the west side front SCA. Therefore, skip lorries can operate freely in collecting and delivering skips without adversely impacting on tree crowns.

- **Controls:**
  - Skips are to be sited on the west side of the site on the driveway in the recommended front Site Compound Area (SCA), as shown on the Tree Protection Plan (TPP) in Section 9.1.

8.2 – Tree Constraints Assessment – Cont'd

Above Ground – on/off site tree stems, low branching and buttressing - (All site activity)

- **Trees Affected:**
  - None.

- **Arboricultural Impacts:**
  - N/A.

- **Comments:**
  - Trees making up the G1 hedge line are to be removed prior to commencement of the development.

  - All other trees recorded in the AIA are off site trees. Therefore, stems, low branching and buttressing of retained trees are not at risk of direct damage from on site related activity.

- **Controls:**
  - All off site trees are not at risk of physical damage to stems, low branching or buttressing, being excluded by existing boundary fencing or by existing dense boundary vegetation.

  - (See Tree Protection Plan (TPP) in Section 9.1).

  - All Construction Exclusion Zone (CEZ) fencing measures must be fully installed at the start of the project and prior to any equipment, tools, materials, site units, or machinery being brought onto site.

The above assessment summarises the above and below ground level tree constraints identified at the site in relation to the development proposal, with a brief summary of tree protection control measures also provided. In terms of the associated construction works and site activity, all retained trees will need to be safeguarded by the installation of physical tree protection measures to prevent damage to them throughout the development phases. (See Tree Protection Sections 9.0 – 10.1 below).

The Arboricultural Method Statement (AMS) in Section 10.1 provides details of the tree protection and control measures to be employed at the site, to ensure the trees are safeguarded above and below ground level throughout the course of the development project and in the long term.

8.3 – Arboricultural Phasing

The following summarises the arboriculturally relevant phases prior to and post completion of the proposed development works:

Pre-development:

- **Pre-development Phase 1** - Undertaking and completion of all General Management Recommendations (GMR) tree surgery and Access Facilitation tree surgery works, as applicable; (See Section 8.3.1).

- **Pre-development Phase 2** - Installation of all required tree protection measures (i.e. barrier fencing to create the on site Construction Exclusion Zones (CEZ) in accordance with the Tree Protection Plan (TPP) in Section 9.1 and to the specifications detailed in Section 9.2, without deviation.

Development Phases:

(A Construction Management Plan (CMP) was unavailable to consider or reference at the time of writing).

- *House extension into the existing detached garage structure at ground floor level and conversion to habitable space;*
- *Loft extension/conversion/dormer;*
- *Associated internal refurbishments.*

- **Note:**

  - **All physical Tree Protection measures (CEZ fencing) MUST remain in place and undisturbed until completion of ALL Development Phases.**

  - *The above phases are broadly generalised in relation to Arboricultural considerations and are subject to the Contractors own Construction Management Plan (CMP), which was unavailable to consider or reference at the time of writing.*

Post-development:

- Remove all construction tools, equipment, scaffolding, waste, materials, skips, temporary units (site huts etc. if in use) and any other construction related apparatus from the site;

- Dismantle and remove the Construction Exclusion Zone (CEZ) fencing.

- Post development visit and inspection of trees & soil by the Consulting Arboriculturist to determine requirements for any amelioration measures.

  - *Client responsibility to contact and arrange the post-development inspection on completion of the development phases. (charges applicable).*

8.3.1 – Tree Surgery Works

The following section summarises the recommended tree surgery works which should be undertaken prior to installation of tree protection measures and commencement of the Development Phases:

- ***Access facilitation – On Site Trees:***
    - ***Tree removals:***
        - *G1*
            - *Trees making up the G1 boundary hedge line are to be removed to ground level and the stumps removed using a stump grinder in preparation for the installation of new fence posts and panels.*

Where applicable, for all planned or recommended tree surgery works concerning trees which are subject to Tree Preservation Orders (TPO) or for trees situated within a Conservation Area, permission must be granted in writing by the Local Authority, following the correct application procedure.

(See Legal and Planning Consents Section 12.0 below).

9.0 – Construction Exclusion Zone (CEZ) – (General)

Retained trees on and/or in close proximity to the site must be protected by physical barriers and/or suitable ground protection before any materials or machinery are brought onto the site, and before any demolition or construction work commences.

Where all activity can be excluded from the tree's Root Protection Area (RPA), vertical barriers are to be erected to create a Construction Exclusion Zone (CEZ).

Where, due to site constraints construction activity cannot be fully or permanently excluded in this manner from all or part of a trees' RPA in unmade ground, suitable temporary ground protection is to be installed over exposed RPA sectors.

The RPA measurements of the surveyed trees (as shown in section 7.1 above) are used to help determine the Construction Exclusion Zone (CEZ) around the trees, protecting them during the construction phases to eliminate the possibility of damage above or below ground level.

The CEZ is created by fencing off the area and/or installing suitable ground protection that is fit for purpose, using the calculated distance of the trees' RPA Radius as shown in the table in Section 7.1 above.

The CEZ is required so that the calculated RPAs of trees remain undisturbed during the development process by excluding all activity from the area, or by protecting any exposed RPA sectors from pedestrian and vehicular traffic with suitable ground protection, if exposed outside of the barrier fencing. The CEZ should also be positioned to protect tree stems, buttress roots, surface roots and any low tree branches which may travel beyond the calculated RPA. In these cases, barrier fences should be extended to incorporate low hanging crown branches behind them if possible. Single stem trunk guards may also be used to protect individual tree stems from damaging impact, where access and operational space may otherwise be restricted by the standard CEZ fencing.

The storage of building materials also must not occur within any designated CEZ. An area for storage of materials, fuels, spoil and the mixing of cement and concrete will be determined during the planning phase to ensure the RPAs of the trees are not affected. (See Arboricultural Method Statement (AMS) 10.1 below).

Materials which can be considered as contaminates such as cement, concrete mixings, spoil and fuels, whose accidental spillage would cause damage to a tree, should be stored and handled well away from the outer edge of any tree RPA and in accordance with the *Control of Substances Hazardous to Health Regulations 2002 (COSHH). This also includes vehicle washings and care must be taken to ensure that sloping ground will not allow for contaminates to travel into the CEZ.*

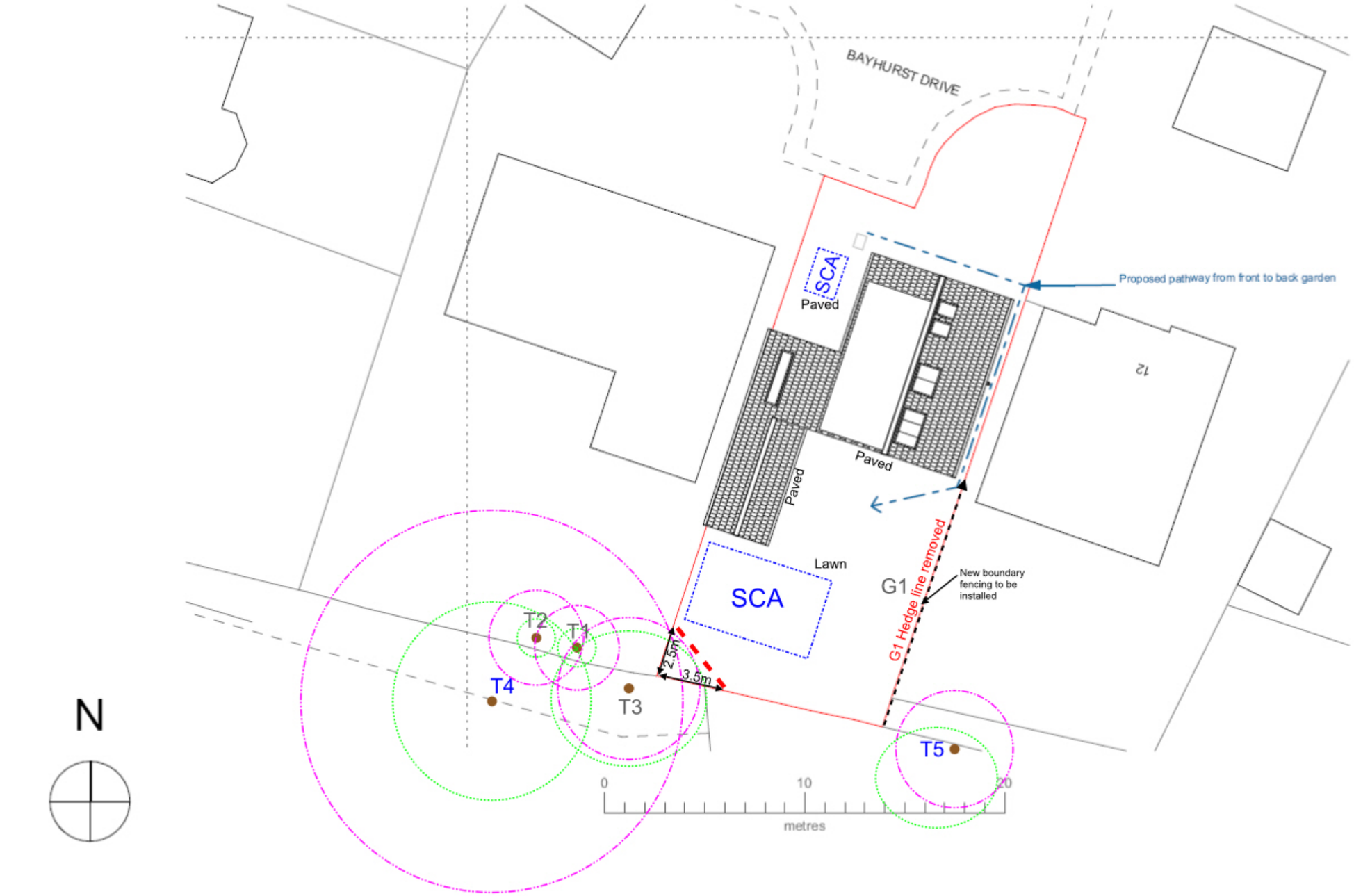
Fires on site are not permitted. Notice boards, cables or other services must not be attached to the tree stems, limbs or branches.

The CEZ must be considered as sacrosanct and not removed or altered without prior consultation with a Tree Sense Arboriculturist. The fencing should also display a sign with words to the effect of "Construction Exclusion Zone – Keep Out".
(See example in Appendix C).

Care must also be taken to ensure that any site activity involving any cranes or vehicles with booms, jibs and counterweights can operate without coming into contact with the protected tree(s). CEZ fencing should be extended to encapsulate low spreading branches if they travel beyond the calculated RPA.

Direct impact from vehicles with tree crowns and stems can cause irreparable damage and may make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman at all times, to ensure that adequate clearance from trees is always maintained.

9.1 – Tree Protection Plan (TPP)



TREE NUMBER COLOUR CODING:	KEY TO SYMBOLS:
RED = CATEGORY U GREEN = CATEGORY A BLUE = CATEGORY B GREY = CATEGORY C	= Calculated Root Protection Area (RPA) = Crown Spread (N, E, S, W)

KEY TO TREE PROTECTION SYMBOLS:

- = Barrier Fencing Construction Exclusion Zone (CEZ)
- = Site Compound Areas (SCA) (Approx/Suggested.) - *For: Temporary site units; Material storage; Material Preparation; Skips (front).*

9.1.1 – Tree Protection Plan (TPP) Notes

The Tree Protection Plan (TPP) in Section 9.1 is shown to approximate 1:200 scale @ A3 based on the Proposed Site Plan (Ref: A.03.1) provided by Architecture 100 | City Lofts.

The TPP is provided only to indicate the position, category and numbering of the retained trees and provide an indication of the identified tree constraints by showing a graphic of the calculated Root Protection Areas (RPA) and relevant tree crown spreads.

Positions of barrier fencing are shown on the plan and are to conform to the specifications detailed in Section 9.2.

Approximate, suggested locations for site compounds and skip locations outside of the CEZs are also indicated.

Do not scale from this drawing, all tree dimensions to be checked on site using details provided in Sections 5.0 and 7.1.

Measurements and directions annotated on the TPP are to be used to measure out and determine the positioning and installation of the Construction Exclusion Zone (CEZ) fencing at the site, unless otherwise detailed or advised.

The indicated barrier lines to create the CEZ in the south-west corner of the rear garden is suggested as the simplest and most effective layout to exclude all construction activity from the trees T3 and T4 above and below ground level, and afford the trees maximum protection throughout all development phases to completion.

All required physical tree protection measures must be fully installed before any construction work begins and after Access Facilitation and General Management Recommendations for tree surgery works have been completed. (See Section 8.3.1).

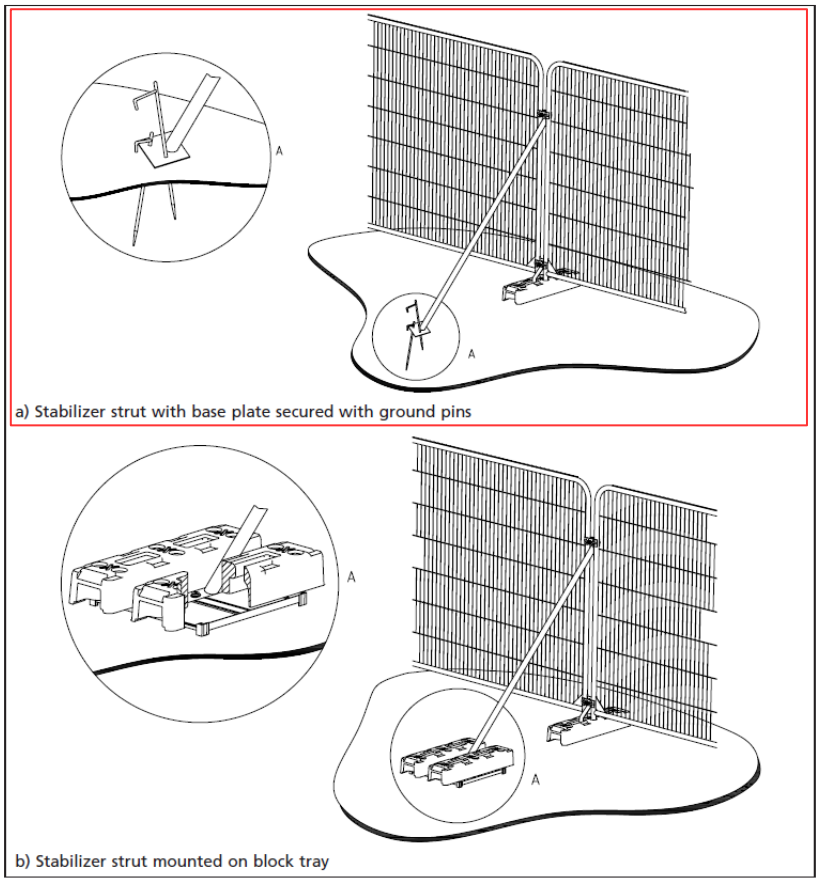
All physical Tree Protection measures (CEZ fencing measures) MUST remain in place & undisturbed until completion of all Development Phases.

The following sections detail the Construction Exclusion Zone fencing and ground protection specifications as detailed in BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

9.2 – Protective Barrier Specification

N.B - Barrier fencing should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work being undertaken around them.

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

In the case of the development project at 11 Bayhurst Drive, with consideration paid to the prevailing ground conditions at the site, barrier fencing to the specifications shown in Figure 3a will be the most suitable to create the fenced off Construction Exclusion Zones (CEZ).

Steel mesh "Heras" type fencing (minimum 2m height) with stabilizer struts and base plates secured with ground pins (as shown in Figure 3a above), will be used to create the Construction Exclusion Zone (CEZ) in the south-west corner of the rear garden, due to the prevailing soft landscaped ground conditions (lawn).

The CEZ fencing is to be installed to the layout as shown on the Tree Protection Plan (TPP) in Section 9.1 and positioned based on measurements and directions annotated on the TPP.

No site related access is permitted beyond the fence lines or inside the CEZ once installed, throughout all development phases.

The CEZ fencing must be fully installed prior to any site works commencing, including bringing tools, equipment, site units, machinery, or materials onto site.

All physical Tree Protection measures (CEZ fencing) MUST remain in place and undisturbed until completion of all development phases.

9.3 – Ground Protection Specification

Temporary Ground Protection (TGP) measures are not required at the application site through the course of the development, as all tree RPA sectors shown to extend inside the site boundaries will be wholly excluded by the installed Construction Exclusion Zone (CEZ) fencing.

(See Tree Protection Plan (TPP) in Section 9.1).

10.0 – Arboricultural Implications

The potential direct and indirect impacts on trees which may arise from the proposed development and related construction activity, (identified following the tree constraints assessment) are as follows:

- **Soil compaction in tree Root Protection Areas (RPA);**
- **Soil contamination;**

Site specific controls relating to mitigation measures to be implemented in respect of these implications can be found in the Arboricultural Method Statement 10.1 below.

10.1 – Arboricultural Method Statement (AMS)

Arboricultural Method Statement for tree protection throughout the duration of the proposed development works.

This Method Statement specifies the general principles to be adopted during proposed development works, based on information and details available to the Consulting Arboriculturist at the time of writing. Often additional input is required from Engineers to confirm the exact locations of services or technical specifications which are beyond the scope of a Consulting Arboriculturist. This is usually provided at the reserved matters stage or via planning conditions.

Control measures must be implemented as detailed below to safeguard all assessed retained trees above and below ground level against the potentially damaging effects of construction works and related site activity.

The Arboricultural Method Statement (AMS) below is to be read and implemented with reference to the Tree Protection Plan (TPP) in Section 9.1, to identify:

- Trees to be retained – identified by a circle showing the stem position and individually numbered on the plan;
- Protective fence positions - (Therefore, the designated Construction Exclusion Zones);

A copy of this AMS and the Tree Protection Plan (TPP) shall be maintained on site at all times and must be made available to all site personnel to read and acknowledge.

A Site Personnel Induction Form (Template provided in Appendix B) must be completed and kept on file for all individual operatives working at the site, including sub contractors.

Construction Exclusion Zone (CEZ)

- No site related access, material storage, waste storage, siting of temporary site units or construction works of any kind are to be undertaken inside any designated Construction Exclusion Zone (CEZ) at the site.

- The Construction Exclusion Zones (CEZ) are to be afforded protection at all times and will be dictated by physical barrier fencing to the correct specification as detailed in Section 9.2.

- The protective fencing is required to be sited in accordance with the Tree Protection Plan (TPP) in Section 9.1, based on measurements and/or instructions annotated on the plan, to ensure CEZ fencing is installed in the correct locations to offer effective, physical protection.

- The CEZ fencing layout in the south-west corner of the rear garden will wholly exclude the RPA sectors calculated for T3 and T4 where they are shown to marginally encroach within the application site boundaries. (See Tree Protection Plan (TPP) in Section 9.1).

- The CEZ fencing installed as detailed will allow adequate access and operational space around the work area without restriction.

- All protective fencing shall be erected and fully installed prior to the commencement of any site works. (e.g. before any construction materials, tools, site units or machinery are brought on site).

- The specification of protective fencing to create the CEZs in the rear garden will be minimum 2m high, steel mesh “Heras” panels with stabilizer struts and base plates secured with ground pins, as detailed in Section 9.2 – (Figure 3a). *(existing soft landscaping conditions – Lawn).*
    - *Heras style wire mesh fencing will provide robust physical protection and allow for regular inspections of the Construction Exclusion Zones (CEZ) to be undertaken.*

- The fencing must have weatherproof signs attached stating that this is a **Construction Exclusion Zone and that ALL ACCESS IS PROHIBITED within the fenced off area, or similar. *(Example provided in Appendix C).***

- Once installed the CEZ fencing must remain in place and undisturbed until completion of all development phases.

10.1 – Arboricultural Method Statement (AMS) – Cont'd

Construction Exclusion Zone (CEZ) - Cont'd

- Temporary Ground Protection (TGP) measures are not required to be used at the site, as all RPA sectors will be wholly excluded from site activity be the installation of CEZ fencing. (See Tree Protection Plan (TPP) in Section 9.1).

Access Details

- All site access will be via the front driveway and side access points on the west and east sides of the house, which lead directly into the rear garden.
- The east side access passage will be able to provide clear access following the removal of the G1 hedge line and will likely be the primary access route once the existing west side passage has been enclosed by the extension.
- No personnel or plant/vehicle access is permitted beyond the installed CEZ fencing at any time throughout the course of the development phases.
- The purpose of the CEZ is to prevent all site access and operations from occurring inside tree RPAs or near trees above ground level wherever possible, with consideration paid to the access and operational space required for construction works to be undertaken.

Contractors car parking

- On site parking spaces for contractor vehicles will be unlikely due to the driveway only offering space for one vehicle and will likely have a skip located on the driveway and unrestricted car parking can be found on Nancy Downs, outside or in close proximity the the property.

Site Welfare Facilities

- All temporary site welfare facilities, and site office units (if required) can be located in the front garden, or within the curtilage of the rear garden, but must not enter the fenced off CEZs.

10.1 – Arboricultural Method Statement (AMS) – Cont'd

Storage Space & Waste Management

- No storage of bulk construction materials or plant machinery is permitted beyond the installed CEZ fencing at any time.
- Areas of the front driveway and the rear garden outside of the CEZs have been recommended for material storage and material preparation (Site Compound Areas).
- Recommended Material Storage/Site Compound Areas (SCA) are shown with a blue hashed line on the TPP in Section 9.1.
- No dry or liquid waste is to be stored or discarded inside the installed CEZ fencing at any time.
- **Contaminate materials such as oils, fuel, chemicals and gases will be stored and handled away from the CEZs and must be stored and handled in accordance with the *Control of Substances Hazardous to Health Regulations 2002 (COSHH). This includes the storage of all contaminate or hazardous materials within a bunded container or cabinet, which minimises exposure and risk.***
- ***There should be specific storage spaces for all COSHH substances. Access to these areas should be restricted to authorised personnel only and stringent security measures must be implemented.***
- ***The rear garden SCA has been designated as the area where a bunded container/compound is to be installed for the storage of all contaminate materials.***
- No soil, demolition debris, or any other waste materials will be stored beyond the CEZ fencing, within the RPAs or under canopies of the retained trees, whichever is the greater. All construction related waste is to be removed from the site at the earliest opportunity.
- A Construction Management Plan (CMP) detailing the frequency of visits for material deliveries, waste management etc. was not available at the time of writing and should be requested directly from the applicant, if required.

Demolition works

- No significant demolition works of existing structures are proposed.
- Internal and external alterations to the house and garage elevations and the loft space to accommodate the conversion will not require the use of plant machinery and will not impact on trees above or below ground level.
- A Construction Management Plan (CMP) was not available at the time of writing to consider or reference in relation to exact demolition methodologies and the use of plant machinery engaged in these operations and should be requested directly from the applicant.

Construction within RPAs of retained trees

- No construction will occur within the RPAs of trees, including for new pathway paving at the front of the house and the installation of the new east side boundary fencing in the rear garden (following the removal of the G1 hedge line).

Utility Services

- At the time of writing, no trench excavations for new or alterations to existing utility services infrastructure are proposed where tree RPAs will be affected.
- *A Construction Management Plan (CMP) providing details for utility infrastructure was not available for consideration or reference at the time of writing and should be requested directly from the applicant.*

10.1 – Arboricultural Method Statement (AMS) – Cont'd

Additional Precautions

- All Preliminary / General Management Recommendations / Access Facilitation tree surgery works must be undertaken prior to the installation of the Construction Exclusion Zone (CEZ) fencing and Temporary Ground Protection (TGP) apparatus being installed.

- All Preliminary / General Management Recommendations / Access Facilitation tree surgery works must be completed prior to commencement of the development phases.

- Fires at the site are not permitted at any time.

- No notice boards, cables or other services will be attached to any tree stem, limb or branch.

- Should any woody tree roots over 25mm in diameter be exposed during the course of any existing surface removals or excavations they must be immediately wrapped or covered in hessian cloth to prevent desiccation and protect from temperature changes whilst exposed and the Consulting Arboriculturist advised immediately.

- Any roots exposed over 25mm in diameter must not be severed without prior consultation with the Consulting Arboriculturist.

- Consideration will be given at all times to ensure that sloping ground will not allow for any contaminating substances to travel into areas where tree RPAs may be affected.

- Should spillages of contaminates occur, water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will immediately contact the Consulting Arboriculturist for advice.

- Any significant build up of dust or particulate material on tree foliage should be hosed down to prevent clogging of stomata in the leaves.

- No cranes are proposed to be in use at the site. (At the time of writing).

- Skips (if required) must be positioned where lorry lifting gear can operate safely without coming into contact with tree crowns/branches.

- Recommended areas for skips to be located are shown on the Tree Protection Plan (TPP) in Section 9.1. The suggested Site Compound Area (SCA) on the west side front driveway outside of all CEZs will allow for safe skip delivery and collection without adversely impacting tree crowns/branches.

10.2 – Responsibilities

- It will be the responsibility of the main contractor to ensure that the 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.
- The main contractor must further assign tree protection monitoring duties to one or more individuals working at the site, who will be responsible for regular tree protection monitoring and supervision.
- **The individual(s) assigned tree protection monitoring duties must:**
- Be present on site for the majority of the time throughout the development phases;
- Be aware of (a) the Tree Protection Plan (TPP) and (b) the tree protection measures to be installed and maintained throughout the build;
- Be responsible for ensuring all physical tree protection apparatus (layouts and specifications) and demolition/construction control 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 TPP and AMS;
- Keep on file all individual Site Personnel Induction forms (*see Appendix B*) which must be completed and signed by all site operatives indicating they have read and understood the control measures detailed in the TPP and AMS;
- Maintain a written, auditable record of regular Tree Protection / Construction Exclusion Zone inspections (*see Appendix A*), 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 is listed on the Title Page);*
- Construction Exclusion Zone (CEZ) fencing, Temporary Ground Protection (TGP) apparatus 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.
- 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.
- 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).
- 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 development works on the site.
- The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

10.3 – Tree Work Standards

All recommendations for tree surgery works made within this report have been done so in the interests of sound arboricultural management and to ensure tree surgery works are performed to a professional standard in accordance with *BS 3998:2010 Tree work – Recommendations.* (As updated).

All remedial tree surgery work which is suggested in this report must be undertaken to conform to standards and procedures set out in *BS 3998:2010 BS 3998:2010 Tree work – Recommendations.* (As updated)

- Tree Sense Arboricultural Consultants are happy to recommend a trusted tree surgery contractor if required, to ensure that all recommended tree surgery work is performed to a high standard.

- Tree Sense Arboricultural Consultants only recommend contractors who are approved by The Arboricultural Association to ensure that the highest standards of tree surgery work are met at all times.

11.0 – Report Summary

This Arboricultural Impact Assessment (AIA) report has been produced following a tree survey conducted in accordance with *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations*.

The information produced within the AIA report follows an initial tree survey conducted on the 6th November 2025.

The AIA report provides an assessment of the trees associated with the proposed development, based on available information supplied by the applicant at the time of writing and observations recorded at the time of the tree survey.

The AIA report is published to detail the findings from an arboricultural viewpoint within the context of the proposed scheme and to detail the necessary tree protection controls and methodologies required to safeguard trees in the short and long term.

The AIA concludes, that if the recommendations made within this report are duly followed, the development is achievable in arboricultural terms and should be acceptable to the Local Planning Authority (LPA). It must be understood however, that the provision of this AIA report does not provide any guarantees that the associated Local Planning Authority (LPA) will agree with the opinion of the Consulting Arboriculturist, or grant planning consent based on the content and findings of the AIA report.

If any design changes are made to any aspect of the proposed development project due to the identified tree constraints, operational restrictions, geotechnical concerns or otherwise, revisions or additions to tree protection, damage mitigation measures and site layouts will need to be made and a revised report produced.

This is a Development Control, 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.

Full detailed specifications of the development project, demolition, construction and engineering methods etc. will be supplied by the development team separately as supporting documents to the planning application, as required.

Detailed information regarding the site setup, equipment/machinery/tool use, waste management and construction methodologies was not available at the time of writing and should be requested separately from the development team in a Construction Management Plan (CMP), as required.

The CMP must take fully into consideration and adhere to all required tree protection control measures, as detailed in the AIA report.

If necessary, referral back to the Consulting Arboriculturist will be required to evaluate any potential tree related impacts which have not already been considered using the available information at the time of publication of this AIA report and a revised AIA report produced.

(i.e. Requirements for crane use, changes to or installation of new below ground utility services, or any other changes to the proposed scheme in its current design or site operations which may be relevant, in respect of potential adverse impact to trees).

12.0 – Legal and Planning Consents

- Appropriate legal and planning consent must be gained before undertaking any tree work; for example if the tree(s) are subject to a Tree Preservation Order (TPO), permission must first be obtained from the Local Authority. Permission is not required for emergency tree work on dead, dying or dangerous TPO trees; however the Local Authority should still be advised.
- Six weeks notice is required to be given to the local authority via a Section 211 Notice for any proposed tree surgery work on trees situated within a designated Conservation Area. Permission is not required for emergency tree work on dead, dying or dangerous trees situated within a Conservation Area; however the Local Authority should still be advised.
- Tree owners have a responsibility as a common law duty of care, as well as responsibilities under statutory law, to ensure that trees growing within the boundaries of their property are maintained to reduce to an acceptable level the risk of potential harm befalling other people or property.
- In the course of undertaking any tree work, the client is advised to ensure that operational assessments and procedures are in place, and to take due consideration of the legal requirements.

- Key legislation includes (but is not restricted to):

    - The Wildlife and Countryside Act (1981)
    - Occupiers Liability Act (1957/84)
    - Highways Act (1980/86)
    - Town and Country Planning Act (1990/Regulations 1999/Amendment 2008/09)
    - Anti-Social Behaviour Act (2003) – Part 8 (High Hedges)
    - The Countryside Rights of Way Act (2000)
    - The Conservation (Natural Habitats etc.) Regulations (1994)
    - The Badgers Act (1992)

13.0 – Publications

- Other publications which are relevant to the development proposal to which further reference is advised includes but is not restricted to:

    - National House Building Council (N.H.B.C) Chapter 4.2 – (Building near trees);

    - National Joint Utilities Group (NJUG) Volume 4 – (Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees).

Chris Wallis *Tech Cert (ArborA), AHort II (Arb.)*
Tree Sense Arboricultural Consultants

Appendix A – Construction Exclusion Zone Inspection Form

Construction Exclusion Zone Inspection Form

Site Address: 11 Bayhurst Drive, Northwood, HA6 3SA

Client Name: Mr A. and Mrs, A Patel

Inspected By_____ **Signature:**_____

Inspection Date & Time:_____

Construction Exclusion Zone – Barrier Fencing

Comments:

Action Taken:

Construction Exclusion Zone – Temporary Ground Protection

Comments:

Action Taken:

General Observations and Additional Comments

Appendix B – Site Personnel Induction Form

Site Personnel Induction Form
Name:_____ **Company**:_____ **Site Address:**11 Bayhurst Drive, Northwood, HA6 3SA **Date**:_____

Declaration	**Tick to Confirm**
I have read and understand the Tree Protection Plan and Arboricultural Method Statement and the requirements to be employed / actioned at the site regarding tree protection.	
I understand that all tree protection measures (Construction Exclusion Zone fencing and Temporary Ground Protection apparatus, as applicable) once installed, must not be moved or disturbed throughout the development project without prior agreement with the Consulting Arboriculturist, or where specifically permitted as detailed in the Arboricultural Method Statement.	
I understand that where advised within the Arboricultural Method Statement, certain operations may only be undertaken under supervision of the Consulting Arboriculturist and/or must not be undertaken without their approval.	
I acknowledge that any concerns I have (actual or potential) regarding the protection of trees at and adjacent to the development site will be brought to the attention of the Site Manager/Supervisor at the earliest opportunity.	
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.	

SIGNATURE: _____

Appendix C – Construction Exclusion Zone (CEZ) – Sign Format

Below is a suggested format for weatherproof warning signs to be attached to the barrier fencing which create the Construction Exclusion Zones (CEZ) at the site:

TREE PROTECTION AREA

KEEP OUT !

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

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE PROJECT ARBORICULTURIST