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Project: 23_5837_07_56
Site: 10 Gordon Place, Manchester, M20 3LD.
Client: Taki Sonbli

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Document Title:	Tree Survey & Arboricultural Impact Assessment
Document Author:	Alexander N BSc Arb, MArborA.
Project Title:	10 Gordon Place, Manchester, M20 3LD

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15/08/2023	1.0	First Draft
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Summary:

This is a BS5837 compliant arboricultural assessment report providing detailed and sufficient information for the Local Planning Authority to be able to consider the effect of the proposed development on local character and amenity from a tree perspective.

Our brief has been to obtain details of the tree population on site with a view to assessing any arboricultural constraints.

This report was commissioned in relation to the proposed development at 10 Gordon Place, Manchester, M20 3LD.

The report details all trees over 75mm at 1.5m above ground level that are relevant to the siting of the proposed development. The position of the trees on the site is illustrated on the tree constraints plan and information about the tree stock and its current condition is given within the arboricultural data tables.

It will assist the planning process by discussing the impact that the proposals will have on the existing tree stock.

An Arboricultural Impact Assessment is included at Section 4 which details the constraints placed on the proposed development from the rooting area of the trees below ground and above ground by virtue of their size and position.

Report Author.

ROAVR (ROAVR Group) was formed in 2010 and since then has carried out arboricultural consultancy Nationwide with directly employed consultants. Our consultants are all individual members of the Arboricultural Association and the report author is listed in the document control sheet.

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Validation Statement for the Local Planning Authority.

This report includes the following for LPA validation purposes:

- A **tree survey and tree constraints plan** showing the existing trees, their category rating and above and below ground constraints shown on an OS extract OR a topographical survey
- An **arboricultural impact assessment** which describes how the development will affect local character from a tree perspective
- An **arboricultural method statement** describing tree protection measures and implementation strategy
- An **appendices** highlighting tree related information including the **arboricultural data tables**

Customer Action Points.

- ☐ - reporting complete - send to your Local Planning Authority
- ☐ - on planning award contact us with your decision notice

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Table of Contents

1 Scope

2. Site Conditions & Site Surroundings

3. Drawings

4. Arboricultural Impact Assessment - Site Specific

Appendix 1 – Site Location

Appendix 2 – Arboricultural Data Tables

Appendix 3 - Tree Plans

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Tree Survey & Arboricultural Impact Assessment to BS 5837 2012 of trees at:

10 Gordon Place, Manchester, M20 3LD.

1 Scope

1.1 We have recently been instructed to undertake an appraisal of mature tree cover at 10 Gordon Place, Manchester, M20 3LD.

1.2 The data was collected to the British Standard BS5837 'Trees in Relation to Design, Demolition and Construction - Recommendations' 2012.

1.3 The survey has been commissioned to offer guidance on the arboricultural constraints with a view to the future development of the site.

1.4 The trees were inspected on the 01/08/2023 following the guidance in the British Standard by ROAVR. The crowns and stems were inspected from the ground using the 'Visual Tree Assessment (VTA)' method; non invasive techniques were used at this stage. Although a sounding hammer was used to determine the presence of any decay.

1.5 The site was assessed and data was collected on all woody vegetation falling within the scope of the British Standard. Trees were grouped or designated woodlands as per the allowance in the British Standard when the area in question was uniform in terms of species, age or geography.

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Photographic Plates.

Photographic plate showing T1

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Photographic plate showing T1 on the right of the image and the proposed development location to the left.

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Aerial image plate showing that the top of T1 has been removed in the past.

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Photographic plate showing T2 and T3.

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Photographic plate showing T4.

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2. Site Conditions & Site Surroundings

2.1 The site is situated in Manchester in the Manchester City Council control area. The site is located on the south side of the town and has an urban feel.

2.2 The site is home to a semi detached residential dwelling with associated hard and soft landscape.

2.3 The wider locality is predominantly residential housing. The site is accessed via a private drive off the adjacent public access road.

2.4 A desktop assessment has failed to highlight,without direct checks with the local planning authority. Whether or not the site is located within a Conservation Area or if there are any TPO protected trees on or adjacent to the plot.

2.5 All desktop assessment data was cross checked and validated on the 15/08/2023 using the web portal provided by the local planning authority.

2.6 Works to protected trees require consent from the local planning authority. In the case of TPO's an application must be made. In the case of conservation areas a notification must be made. TPO applications take up to eight weeks, conservation area notifications take six weeks.

2.7 Certain exemptions apply; for example the removal of deadwood. In the case of dangerous trees 5-days written notice should be given to the local authority (in the cases of immediate danger the work should proceed, but the local authority contacted as soon as possible afterwards) with the works evidenced by photographs and video where possible. You should also check to ensure the works are exempt from the requirements of a felling licence.

https://www.legislation.gov.uk/uksi/2012/605/regulation/14/made

2.8 It should be noted that planning consent overrides protected trees, where the works or removal are necessary for development to proceed and have been highlighted in the tree survey documents.

2.9 Bats. Under current legislation it is an offence to 'intentionally or recklessly disturb a bat' or 'damage, destroy or block access to the resting place of any bat'. For further details consultation must be made with the Statutory Nature Conservancy Organisation. Where relevant any current ecological surveys for the site will take precedence in this matter. Trees provide numerous 'potential roosting features' for a wide range of bat species. It is therefore crucial that any trees proposed for removal are checked by an appropriately competent person before any felling or ivy stripping works commence.

https://www.bats.org.uk/advice/bats-and-the-law

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2.10 Birds. It is an offence to kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while it is in use or being built. Therefore work likely to disturb nesting birds must be avoided from late March to August. All birds, their nest and eggs are protected by law.

https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/

3. Drawings

3.1 Appended to this report is a tree constraints plan, tree assessment plan and tree protection plan.

3.2 The tree constraints plan has been produced using an OS supplied .dwg (AutoCAD) base plan as no topographical survey was available. Tree positions and data have been applied using our survey handset as an onsite exercise with the constraints plan being produced as a PDF through Auto CAD.

3.3 An autoCAD .dwg file of the tree constraints is available on request for project stakeholders to utilise.

3.4 The *Tree Constraints Plan* shows the existing layout. For each tree the stem location is indicated and scaled according to its diameter, the canopy is indicated according to measurements taken along the four cardinal points of the compass. Root protection areas (RPAs) are indicated which are calculated according to the guidelines within BS 5837 (2012).

3.5 Where appropriate, the shapes of the RPAs have been amended to reflect actual site conditions or where trees have been heavily pruned. The 'original' RPAs are indicated as a dashed line whereas the amended RPAs are indicated as a solid line. Any variation to this approach will be highlighted on the appropriate plans.

3.6 The *Tree Assessment Plan / Arboricultural Impact Assessment* indicates the tree constraints with the proposals overlaid. Where applicable, this plan shows where works are proposed in Root Protection Areas and which trees are to be pruned or removed. This plan accompanies the Impact Assessment which is to be found in Section 4.

3.7 The *Tree Protection Plan (if applicable)* shows the protection measures that are to be installed during the construction phase. This plan accompanies the Method Statement which is appended to this tree survey and AIA.

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4. Arboricultural Impact Assessment - Site Specific

Tree Quality Statement.

The tree cover at 10 Gordon Place consists of 4 onsite trees. The majority of the trees on site are garden ornamental trees that add little amenity value but nevertheless still provide good levels of ecological value. The principal tree on the site is T1 a mature Lawsons Cypress that has vastly outgrown its planting position. The tree provides good amenity and ecological value to the site and surrounding area.

4.1 Description of The Proposed Development

The drawings listed in the table below were used by ROAVR to produce the Arboricultural drawings referenced in this report. If your plans change (either before or after planning submission), then the tree drawings will require updating. This report cannot be submitted in support of a scheme that varies from the drawing reference number shown in box one below as the Impact Assessment (Section 4) will not be valid.

Drawing Name / No.	Date Issued To ROAVR	ROAVR Drawings Issue Date:
Mark.dwg	26/07/2023	16/08/2023

4.1.1. It is proposed to erect a single storey side extension with a raised decking area and associated hard and soft landscapes.

4.1.2. The table below summarises the potential impact on trees due to various activities.

Trees Potentially Affected:

Tree or Tree Group	Impacts
T1	Proposed development sits directly in the western side of the radial root protection area. See 4.5.1. The proposed development also encroaches into the western crown area. See 4.4.1.
T2, T3 and T4	No direct or indirect impacts can be retained and protected throughout construction.

4.1.3. The appended AMS specifies the measures proposed to minimise all possible potential risks of damage to the retained trees.

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4.2. Tree Removal.

4.2.1. No trees require removal to facilitate the proposed development.

4.2.2. Details specific to each tree can also be found in the Tree Data Schedule.

4.3. Mitigation Planting.

4.3.1. No trees to be removed so no mitigation planting is considered necessary.

4.4. Impact on Tree Canopies.

4.4.1. The proposed development encroaches into the western crown area of T1. It will be required that T1 be crown lifted to 1 metre above the eaves of the proposed development.

4.5. Impact on Tree Roots.

4.5.1. The proposed development encroaches into the radial root protection area of T1. Therefore it will be required that a low impact foundation system be designed to minimise excavation within the RPA. The system chosen should be sufficiently flexible in terms of pile placement to enable pile positions to be adjusted during the construction process to avoid tree roots. The raft or ring beam must be installed above existing ground level, and require no changes in ground level within the RPA during installation.

The raised decking area will have no adverse effect on T1 as it will sit above the ground level allowing air and water to still reach the root system. However, It is required that the project arborist oversee the excavation of the trial pits for the deck support posts within the restricted activity zone. Section 1.8 of the arboricultural method statement appended below highlights how the root protection area of T1 can be retained and protected throughout construction.

4.6. New Surfaces.

4.6.1. New hard surfaces are proposed within the Root Protection Areas of trees. See 4.5.1.

4.7. Underground Services.

4.7.1. No underground services are to be installed through any Root Protection Areas.

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4.8 Changes in Ground Levels.

4.8.1 No changes in ground levels are proposed.

4.9 Soil Compaction.

4.9.1 The majority of tree roots lie within the upper soil horizons. This is because the availability of oxygen decreases with depth and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.

4.9.2. Healthy soils contain about 25% air space between solid particles. Increased loading of the soils caused by construction activity causes air to be squeezed out as the soil becomes compacted preventing roots from breathing. Even an increase in pedestrian activity may cause some soil compaction.

4.9.3 It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase. This may be done by installing protective fencing and ground protection measures as recommended within a tree protection plan.

4.10 Demolition Activities.

4.10.1 The tree protection measures specified within a TPP should be installed prior to the commencement of all demolition activities (including soil stripping) to prevent any detrimental impact on tree health. Where this is not practicable, demolition of structures within Construction Exclusion Zones shall be undertaken very early on in the demolition phase and the protective barriers installed immediately thereafter.

4.11. Hazardous Materials.

4.11.1 All hazardous materials (including cement and petrochemical products) will need to be controlled according to COSHH regulations in order to ensure there is no detrimental impact on tree health. Provision shall need to be made to ensure that cement and cement run-off are contained outside of all Root Protection Areas.

4.12. Cabins and Site Facilities.

4.12.1. Consideration should be given to the location of any site welfare facilities in terms of potential impact on trees. Where it is proposed to install cabins or site facilities in Root Protection Areas, the appointed arborist should be consulted and approval obtained from the local authority.

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4.13. Boundary Treatments.

4.13.1. No changes are proposed to the existing boundary features that might impact on trees.

4.14. Impact of Retained Trees on the Development.

4.14.1. Adequate space has been allowed between all retained trees and the proposed development works. Consequently the proposal shall not result in increased pressure to remove or prune any of the retained trees.

4.15. Summary.

4.15.1. It is proposed to erect a single storey side extension with a raised decking area and associated hard and soft landscapes. It will be required that a low impact foundation system be designed to minimise excavation within the RPA. The system chosen should be sufficiently flexible in terms of pile placement to enable pile positions to be adjusted during the construction process to avoid tree roots. The raised decking area will have no adverse effect on T1 as it will sit above the ground level allowing air and water to still reach the root system. However, It is required that the project arborist oversee the excavation of the trial pits for the deck support posts within the restricted activity zone. The appended arboricultural method statement and tree protection plan below highlight how the trees can be retained and protected throughout construction.

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Appendix: BS 5837: 2012 – Guidance Notes

This Standard prescribes the principles to be applied to achieve a satisfactory juxtaposition of trees and structures. It sets out to assist those concerned with trees in relation to design, demolition and construction to form balanced judgements.

It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. It addresses the negative impacts that construction activity may have upon trees and offers mitigation strategies to minimise these impacts.

The Standard suggests a three stage approach to ensure best practice is followed when developing close to trees:

Stage 1: Survey Details and Notes

A ground level visual survey was undertaken. No climbing inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm, which lie within the site boundary or relatively close to it, were included.

Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full Safety Survey or Management Plan which are specifically designed to minimise risk and liability associated with responsibility for trees.

Wherever practicable dimensions were obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees of privately owned third parties are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

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Stage 2: Arboricultural Impact Assessment

After the initial survey and the production of the Tree Constraints Plan, arborists and designers are encouraged to work together to establish a design proposal with minimal impact on the high quality trees. An assessment should be made of all possible impacts including the impact that the trees may have upon the proposal.

The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees and will offer advice in relation to the best chances of success at planning.

Stage 3: Arboricultural Method Statement

This type of report specifies the measures necessary to protect trees against damage from construction activity. The Method Statement should be written in a manner that it may be conditioned and enforced by the local authority upon granting of planning permission. Many trees get damaged on development sites due to the AMS being overly complicated or unreadable from the perspective of practical implementation.

The site manager must be familiar with all aspects of the Method Statement and should ensure that all persons working on the site are aware of those aspects which are relevant to their work. This includes service installation engineers and operators of plant machinery.

Appendix: Survey Methodology

Ground level visual surveys are carried out using the Visual Tree Assessment technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem- base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbing inspection or using specialist decay detection equipment.

The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

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Where significant defects are observed, recommendations are made according to a scale of priority in order to reduce the likelihood of structural failure. The position of the tree and its potential targets are taken into account.

Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape.

Where this is not practical measurements are estimated.

Some trees are surveyed as groups, though this is usually avoided close to areas likely to be developed.

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Document Title:	Arboricultural Method Statement
Document Author:	Alexander N Barnes - BSc Arb, MArborA
Customer Name:	Taki Sonbli
Project Title:	10 Gordon Place, Manchester, M20 3LD

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Matt Harmsworth	MWH	16/08/2023	1.0
Taki Sonbli	TS	16/08/2023	1.0
			Peer reviewed Internally.

THIS DOCUMENT IS AN ARBORICULTURAL METHOD STATEMENT AND IS SUPPORTED BY A TREE PROTECTION PLAN. IT IS A WORKING DOCUMENT & MUST BE BRIEFED ON SITE TO THE SITE MANAGER BEFORE ANY WORKS COMMENCE. OFTEN AN AMS IS CONDITIONED ON PLANNING CONSENT AND BECOMES A LEGALLY BINDING DOCUMENT.

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1. Method Statement [Introduction and Overview]

Restrictions on Activities – Specific Zones

Restrictions on Activities – Throughout the Site

2. Site Inspection

Example ACoW sheet.

3. Tree Works Schedule

Tree Works Specification

4. Tree Protection Barriers Detailed Specification

Tree Protection Fencing

Plywood Boxes. [If Shown On TPP]

5. Ground Protection Measures Detailed Specification

6. New Surfaces Detailed Specification

Resurfacing an Existing Hard Surface

7. Limitations

Appendix 1 – Site Location

Appendix 2 – Arboricultural Data Tables

Appendix 3 – Arboricultural Plans

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1. Method Statement [Introduction and Overview]

1.1. Definition of Terms

Some terms used within the Arboricultural Method Statement have very specific meanings. These are defined below:

Root Protection Area (RPA). This is a theoretical area of ground around a tree where the roots are likely to proliferate. Ground disturbance in this area should be minimised in order to avoid significant impact on tree health. RPAs are indicated on all plans accompanying this report as a red or pink line.

Construction Exclusion Zone (CEZ). These zones are created to protect roots and canopies from inadvertent damage by construction activity. They are usually fenced off by protective barriers throughout the entire construction phase. No works are permitted in these zones other than minor landscaping works which do not require a change in ground level. Where practicable the entire Root Protection Area and the area beneath the tree canopy shall be treated as a Construction Exclusion Zone. These zones are shown on the Tree Protection Plan.

Restricted Activity Zone (RAZ). It is not always possible to create a Construction Exclusion Zone over the entire RPA. This is because access may be required or some works may be proposed within the RPA. In such circumstances a Restricted Activity Zone is created where limitations are placed on construction activity. Ground protection measures may be specified or the Restricted Activity Zone may be fenced off throughout part of the construction phase. See the legend on the Tree Protection Plan to identify these zones.

1.2. Tree Protection Barriers - Overview

The Tree Protection Plan indicates the location of all proposed tree protection barriers.

The barriers shall be installed prior to the commencement of any localised construction activity including soil stripping and delivery of materials. A detailed specification of the barriers can be found in sections below.

The tree protection plan also indicates where ground protection measures shall be installed / maintained as specified in sections 1.7 onwards (Restricted Activity Zones).

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1.3. Planning Status

Tree protection measures specified within this report should be agreed with the local authority so that they may be conditioned upon planning consent.

The site manager must be familiar with all aspects of this Method Statement and should liaise with the author of this report for clarification, or regarding any unforeseen issues where trees may be impacted upon.

A copy of this Method Statement shall be available on-site at all times. All personnel working on the site shall be made aware of any sections appertaining to their work. This includes short term contractors and persons responsible for deliveries and installation of services.

1.4. Overview of Protection Measures

Below is a list of potential arboricultural impacts and a summary of the proposed protection measures:

Tree no.	Protection Measures	Timeline
T1	Retain and protect with braced HERAS fencing and ground protection measures.	Pre-start
T2 and T3	Retain and protect with braced HERAS fencing and ground protection measures.	Pre-start
T4	Retain and protect with a plywood stem box. No ground protection measures are considered necessary as the hardstanding pathway already provides suitable ground protection.	Pre-start

The above measures are described in more detail throughout the remainder of this section.

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1.5. Timing of Operations

Activity within the site shall be phased according to the following chronology:

Order Phase Activity	Phase Name	Works required
1st Phase	Pre-construction phase	Undertake a pre-start meeting with the builder, client and ACoW
2nd Phase	Protection phase	Install HERAS tree protection fencing and signage as highlighted on the TPP
3rd Phase	Ground Protection	Install any specified ground protection boarding as highlighted on the TPP
4th Phase	Construction phase	ACoW visit to supervise any piling works
5th Phase	Post Construction Phase	Remove tree protection measures and carryout any remedial works such as alleviation and radial mulching

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Restrictions on Activities – Specific Zones

1.6. Construction Exclusion Zones

Within Construction Exclusion Zones (shaded purple on the Tree Protection Plan) the following restrictions shall apply:

Tree Protection Barriers shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and specified in Section 4 - Tree Protection Barriers.

No construction activity whatsoever shall occur.

No vehicles or plant machinery shall be driven or parked.

No tree works, other than those specified in this report shall be undertaken.

No alterations of ground levels or conditions.

No chemicals or cement washings permitted.

No excavation whatsoever shall occur.

No temporary structures.

No spoil shall be stored.

No fires shall be permitted.

All hazardous materials (including non-essential cement products) shall be forbidden.

Where hard surfaces are to be removed, this shall be done using hand tools or mechanical excavators operating from outside the Construction Exclusion Zone and marshalled by the appointed arborist.

Any structures shall be removed manually and without mechanical excavation.

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1.7. Restricted Activity Zone A

Within these zones (indicated on the Tree Protection Plan) tree roots are likely to be present. Access will be required to facilitate construction and some resurfacing works may be required. The following restrictions shall apply:

Any resurfacing shall be done strictly in accordance with the Guidelines in APN12 New Surfaces.

Removal of existing structures such as walls, steps and hard surfaces shall be undertaken using hand tools or a mechanical excavator operating from outside the Restricted Activity Zone and carefully marshalled by an appointed arborist.

A suitable load spreading surface shall be installed and/or maintained as specified in Section 5 – Ground Protection Measures. This shall remain in place throughout the entire construction phase.

No excavation shall occur in this zone without consulting the appointed arborist and obtaining approval from the local authority.

Storage of materials shall be limited to that which is required for the task in hand. Heavy materials that require storage for more than two days shall be stored outside the Restricted Zone.

No spoil shall be stored.

No fires shall be permitted.

All hazardous materials (including non-essential cement products) shall be forbidden.

1.8. Restricted Activity Zone B

The following restrictions shall apply for the excavation of the trial pits required for the deck support posts within the Root Protection Area of T4.

All trial pits shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).

Exploratory pits shall be dug before committing to positions. If any roots in excess of 25mm are encountered they are to remain intact and the pit shall be relocated slightly. The raised deck area must permit such flexibility. Once the

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final pit locations have been decided they must be suitably lined before any concrete is poured.

Any roots in excess of 10mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

1.9. Restricted Activity Zone C - Installation of Piled Foundations

Within this zone (indicated on the Tree Protection Plan) it is proposed to install piles as per a structural engineer's design.

The specific method adopted will vary between contractors. However, the following restrictions will apply and must be adhered to:

No excavation or ground disturbance shall occur beyond the footprint of the proposed development.

No large plant machinery shall operate beneath the canopy of any retained trees.

Where a small excavator or piling rig is used, it shall operate from suitable ground protection boarding.

The excavator/piling rig shall be marshalled to ensure no contact is made with the canopy of any retained trees.

Trial pits for each pile shall be excavated by hand, or using an air spade, to a depth of 600mm. If a significant root is discovered then the pile position shall be relocated slightly to avoid damaging the root. No root over 25 mm diameter shall be severed, and any roots between 10-25 mm which are severed shall be cleanly cut back to the edge of the excavation.

The slab/ring beam will be cast in situ above existing ground level, no excavation for the installation of the slab/ring beam or heave protection shall be permissible.

The appointed arborist shall be invited to oversee the initial stages of any pile installation including excavation of trial pits.

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Restrictions on Activities – Throughout the Site

1.9. Canopy Protection

In order to protect tree canopies the following restrictions shall apply throughout the site:

No machinery shall pass beneath the crowns of trees without being carefully marshalled in order to ensure that no branches are damaged.

If materials require installation or delivery beneath tree canopies, this shall be done without the use of overhead cranes.

If materials are to be installed or delivered close to tree canopies (but not beneath them) and a crane is required, they shall be carefully marshalled in order to ensure that branches are not accidentally damaged.

1.10. Site Hoarding

If site hoarding shall be installed over the Root Protection Area of any tree, the following restrictions shall apply:

Ground levels shall be maintained as existing.

Post holes shall not exceed 300mm x 300mm.

No post hole shall be excavated within 1.5m of any tree stem.

Post holes shall be excavated using hand tools or by a post-hole auger attached to plant machinery sited outside the Root Protection Area(s).

Roots in excess of 25mm shall be retained wherever possible.

Roots in excess of 10mm shall be pruned with sharp secateurs.

Pruning shall be minimal and only undertaken where absolutely necessary to facilitate the site hoarding. It shall be undertaken by a reputable tree surgeon working to BS 3998 (2010).

Cement products shall be mixed away from Root Protection Areas (see Section - Hazardous Materials).

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Site hoarding may be installed in place of the specified tree protection measures subject to the approval of the local authority with regard to its location and specification.

1.11. Fencing.

Where fence posts are to be installed within Root Protection Areas, the following restrictions shall apply:

All post holes shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).

Exploratory post holes shall be dug before committing to post / panel positions. If any roots in excess of 25mm are encountered they are to remain intact and the post hole shall be relocated slightly. The fencing system must permit such flexibility (i.e. where fixed panel widths are used, all post holes must be excavated before committing to the final location).

Any roots in excess of 10mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

Hedges may be planted within Root Protection Areas using hand tools to minimise excavation.

1.12. Demolition and Initial Ground Works

1.12.1. No demolition, removal of surfaces, or soil stripping shall commence until the protective fencing and ground protection measures are installed to the satisfaction of the local authority.

1.13. Underground Services

No underground services (including soak-aways) shall be located in any part of the Construction Exclusion Zones or Restricted Activity Zones unless done so in a manner detailed in a specific Method Statement and approved by the local authority.

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1.14. Lighting, Bollards, CCTV and associated Cables

If any of the above are to be installed close to tree canopies or within Root Protection Areas of retained trees, installation methods shall be detailed in a specific Method Statement and approved by the local authority. Consideration should be given to the following:

Pruning of branches to enable sufficient clearance for light and views. Branches should be removed to the branch collar as per British Standard 3998 (2010).

Post holes must be excavated by hand or using an appropriate sized auger. No other form of mechanical excavation may be used.

Wherever possible, cables should be routed in a direction directly away from the tree stem rather than tangentially across the rooting zone. The location of all such cables shall be determined after consultation with the appointed arborist and approval by the local authority.

1.15. Use of Heavy Plant

All machinery operatives are to be made aware of any Construction Exclusion Zones and Restricted Activity Zones that apply to this site (see the Tree Protection Plan and Section 5.6 onwards).

All machinery operatives are to respect these zones and ensure that no damage occurs to trees due to the careless use of machinery.

Mechanical excavators should have tracks rather than wheels to help spread their load. They should be carefully marshalled when working close to tree canopies.

1.16. Scaffolding

If scaffolding is required in areas containing ground protection measures, the protective boards shall need to remain in-situ and be strengthened and stabilised to bear the weight of scaffold poles.

Prior to the installation of any scaffolding within 0.5m of any tree branches, the appointed arborist shall be consulted to specify any pruning works that may be required.

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1.17. Siting of Cabins and Storage of Materials

Cabins and heavy building materials may be located or stored anywhere outside of Construction Exclusion Zones and Restricted Activity Zones.

Any proposal to install cabins or materials within these zones shall be agreed in writing with the local authority prior to installation.

It may be acceptable to locate site cabins such that they act as a tree protection barrier and replace the specified protective fencing. Where this is being considered, written approval must be sought from the local authority.

1.18. Pedestrian Paving

If it is proposed to install new pedestrian surfaces over Root Protection Areas, excavation shall be limited to the removal of existing turf/vegetation plus an additional 50mm. Excavation shall be undertaken using hand tools only. Porous materials are preferred but not essential if the new surface covers less than 10% of the Root Protection Area. Paving with a thickness of 50mm bedded on mortar, or sand, bearing directly onto the ground, with a finished surface level with existing ground levels will be acceptable. No retaining kerbs shall be used.

1.19. Hazardous Materials

Any mixing of cement based materials shall take place outside the Construction Exclusion Zones and Restricted Activity Zones. Where cement is to be mixed on sturdy plastic sheeting e.g 1200 gauge DPM considerable distances from trees and water run-off cannot enter Root Protection Areas.

All other chemicals hazardous to tree health, including petrol and diesel, shall be stored in suitable containers as specified by current COSHH Regulations, and kept away from Root Protection Areas.

1.20. Removal of Tree Protection Barriers

This will be done after all major construction work is complete. Vehicular access will not be permitted within the Construction Exclusion Zones.

The local authority tree officer shall be made aware that the fencing is to be removed.

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2. Site Inspection

2.1. Inspection Schedule

In order to ensure that the trees are adequately protected it shall be necessary to periodically monitor the works. This will be done by the local authority tree officer or an appointed arborist (Arboricultural Clerk of Works) who will provide the tree officer with a copy of inspection details.

Order Phase Activity	Phase Name	Works required
1st Phase	Pre-construction phase	Pre-start ACoW visit with all interested stakeholders
2nd Phase	Protection phase	ACoW visit to sign off tree protection measures
3rd Phase	Ground Protection	ACoW visit to sign off tree protection measures
4th Phase	Construction phase	ACoW visit to supervise any piling works
5th Phase	Post Construction Phase	ACoW visit to supervise removal of protection measures and final site sign off.

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Example ACoW sheet.

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SITE SUPERVISION FORM - ARBORICULTURAL CLERK OF WORKS

DATE	
CLIENT	
TELEPHONE NUMBER	
E-MAIL	

TERMS AND CONDITIONS FOR THE PROVISION OF ARBORICULTURAL CONSULTANCY

Site:	
Inspected by:	
Site Manager:	
Date of Inspection:	

Tree Protection Fencing.

Comments/Actions:

Ground Protection.

Comments/Actions:

Additional Comments.

Remarks:

I am aware of the tree protection requirements for this site and understand no retained trees must be damaged.

Signed:	Dated:
Name:	Company:

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3. Tree Works Schedule

Tree Works Specification

3.1.1. The following table specifies the tree works which will be required prior to the commencement of construction activity:

Tree no.	Works Required	Phase Timing
T1	*Crown lift to 1 metre above the eaves of the proposed development.*	Pre-start

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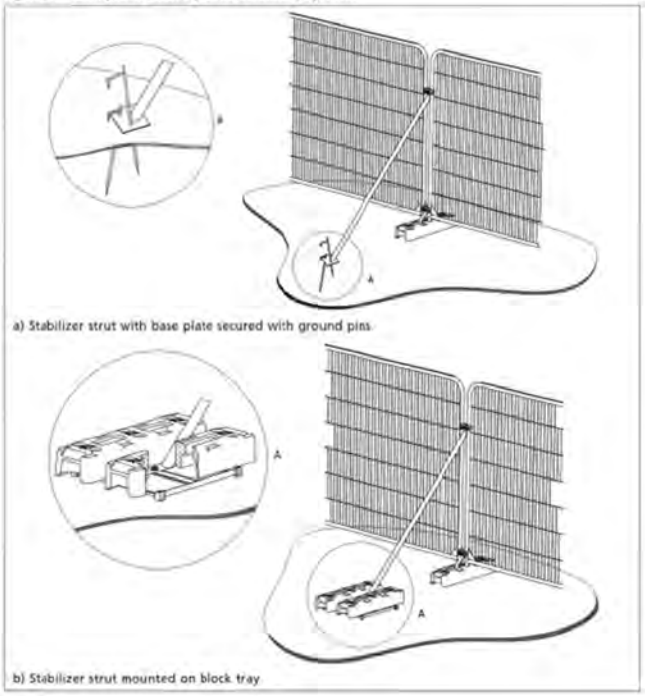
4. Tree Protection Barriers Detailed Specification

Tree Protection Fencing

The purpose of tree protection barriers is to keep construction activity away from Restricted Activity Zones or Construction Exclusion Zones. They should be appropriate to the nature and proximity of activity within the site. The barriers should be erected prior to the commencement of all activity including demolition, soil stripping and delivery of materials and demolition (except where existing structures require demolition to enable the barriers to be installed).

Barrier systems are specified below and should be installed according to the legend on the Tree Protection Plan.

Figure 3 Examples of above-ground stabilizing systems



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Suitable weather-proof notices should be displayed to identify tree protection zones. They should state the purpose of the fencing and that it should not be moved, or traversed, other than by authorised personnel.

Example signage.

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Plywood Boxes.

The CEZ or Construction Exclusion Zone offers protection to the stems of most of the trees on development sites.

However often there is an existing hard surface in place OR placing HERAS panels is complicated due to the trees location.

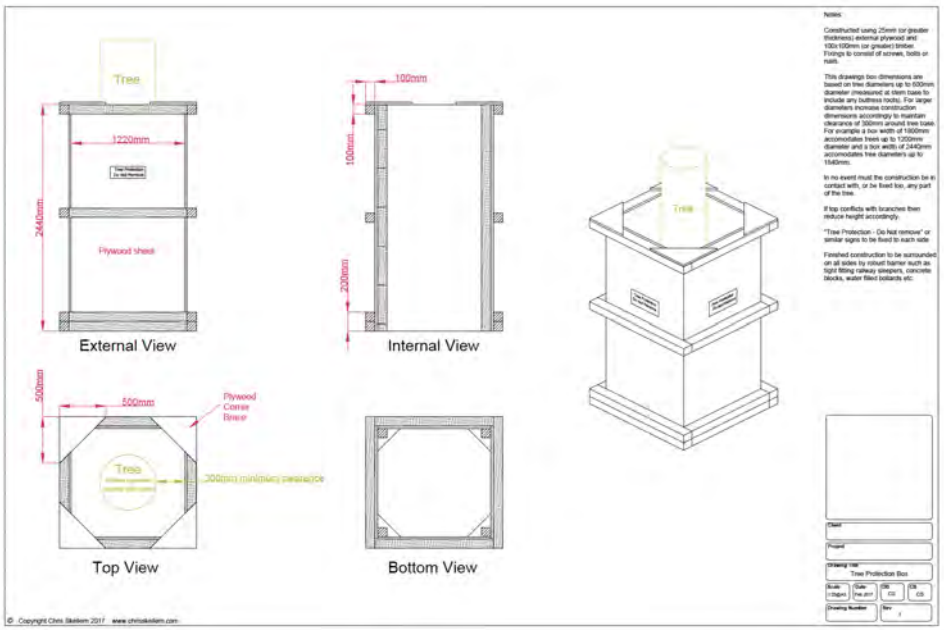
Trees closest to the development project or areas where contractors may access / park / deliver materials may require additional protection in the form of a timber box to be constructed around the tree's stem to prevent the risk of accidental damage caused by collision or abrasion.

Protective boxes should be constructed from sheets of 20mm marine plywood on suitable bearers of pressure treated softwood.

The box must not in any way be secured to the tree it is designed to protect. Tyres or polystyrene boarding can be placed between the tree's stem and the ply box to provide additional impact protection.

The sheets of ply should be closely 'butted' to avoid gaps that could be exploited and the box must be installed pre-start and not removed until all construction works are completed and the site is cleared. Access and egress is often the time that retained trees are struck and damaged.

Used correctly this form of protection is extremely effective.



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5. Ground Protection Measures Detailed Specification

Where indicated on the Tree Protection Plan (Restricted Activity Zone A), the soil may contain tree roots, and ground protection measures should be implemented. Where Root Protection Areas are outside of the Construction Exclusion Zone, the soil may be subject to compaction due to general construction activity (including pedestrian activity and use of plant machinery).

In order to minimise compaction, it is proposed to ensure that a suitable load-spreading surface is in place at all times.

Any existing hard surfacing may be retained and reinforced (where Construction activity is applicable and adequate), otherwise suitable new ground protection fencing measures shall be installed. The ground protection shall need to be able to adequately spread the load of construction traffic. Where existing hard surfacing is to be retained, it shall not be necessary to install additional ground protection measures. However, the hard surfacing must be firm enough to spread the load of any traffic passing overhead.

Where only pedestrian traffic will occur, the ground protection measures may be as simple as timber boards, or scaffold planks installed directly onto a geotextile fabric on the ground. The ground should first be made even by raking, or by adding a few centimetres of sand or woodchip. Alternatively the boards may be supported by a scaffold framework. The scaffold may be founded on poles driven into the ground and/or onto blocks (to raise the scaffold) with additional couplings to make the framework secure.

Where only light vehicles are to operate (e.g. barrows, trolleys or occasional cars), thick wooden boards or scaffold planks should also suffice, though at least 150m of compressible woodchip will need to be installed first to help spread the load. Sturdier systems are specified below:

Where cars will regularly park or heavier vehicles/plant machinery will occasionally operate, sturdier ground protection measures will be required such as metal road plates, or purpose built synthetic road mats over a compression resistant layer such as 150mm of woodchip or 100mm of a 3D cellular confinement system in-filled with 7–40mm angular gravel (e.g. Cellweb™).

A temporary concrete slab may also be considered as a suitable load spreading platform. Where a pile driver needs to operate, a concrete slab may be the preferred option.

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Where existing structures need to be removed, this shall be done with temporary ground protection measures in place to enable this to be achieved without compacting soils.

The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.

6. New Surfaces Detailed Specification

Resurfacing an Existing Hard Surface

If it is becomes necessary to replace an existing hard surface over Root Protection Areas the following restrictions shall apply:

The existing hard surfacing shall remain in place throughout the entire construction project or until it is due to be replaced with a new surface. If the hard surfacing is removed for any reason it shall immediately be replaced by ground protection measures as specified until a permanent hard surface is installed. No vehicle shall pass over this zone unless a permanent hard surface or ground protection is in place.

No excavation in excess of the existing sub-base shall occur. The existing sub-base may be retained undisturbed and incorporated into the new structure.

Hand operated tools shall be used to lift existing surfaces. Mechanical excavators may be used so long as they operate from outside Root Protection Areas and are carefully marshalled by the appointed arborist or local authority tree officer.

Any exposed roots in excess of 25mm are to be retained. Before the new surface is installed, 25mm of soil (or river sand) and a geotextile membrane shall be laid over the root. Until such times, the root shall be adequately protected from pedestrian damage using timber and sand.

Any new sub-base shall not contain fine particles. Coarse sand or larger particles shall be acceptable. 7-14mm gravel is ideal.

A 3 dimensional cellular confinement system may be incorporated into the sub-base and is encouraged. However, this is not considered compulsory since the resurfacing operation shall not cause a deterioration of rooting conditions beneath the existing driveway.

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No salt or lime based products are to be incorporated within the sub-base.

Where the existing surface is porous, it shall be replaced with a new surface which is equally as porous. Where the existing surface is impermeable (e.g. concrete or asphalt), replacement with a porous surface is encouraged but not compulsory.

Appendix: Further Information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., Trees and Buildings.

Horticulture LINK project 212. (University of Cambridge, 2004), Controlling Water Use of Trees to Alleviate Subsidence Risk. Tree Planting and aftercare see www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare and veteran tree management.

British Standards BS 5837: 2012. Trees in Relation to Design, Demolition and Construction – Recommendations. Bs 3998: 2010.

Recommendations for Tree Work. BS 3936: 1992. Nursery Stock. Part 1: Specification for Trees and Shrubs. BS 3936: 1992. Nursery Stock. Part 10:

Specification for Ground Cover Plants. BS 4043: 1989. Transplanting Root-balled Trees. BS 8004: 1986. Foundations. BS 8103: 1995.

Structural design of Low-Rise Buildings. BS 8206: 1992. Lighting for Buildings.

BS 8545:2014. Trees: From nursery to independence in the landscape – Recommendations

BS 3882: 2007. Topsoil. BS 4428: 1989. General Landscaping Operations (excluding hard surfaces). Permission to do Works to Protected Trees / Tree Law
Forestry Commission (Edinburgh, 2003), Tree Felling – Getting Permission. Country Services Division - Forestry Commission. Downloadable at www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf

Transport and the Regions (Department of the Environment, 2000), Tree Preservation Orders, A Guide to the Law and Good Practice. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

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C. Mynors, The Law of Trees, Forests and Hedgerows (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from:

http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/
Lighting Levels

P.J. Littlefair, B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice. B.R.E. Bookshop, London.

British Standards Institution. Code of practice for daylighting. British Standard BS 8206: Part 2 (1992).

Chartered Institution of Building Services Engineers. Applications manual: Window Design (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. ETSU Report S-1126. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, Passive solar design in non-domestic buildings. ETSU Report S-1110. Harwell, Energy Technology. P. J. Littlefair, Measuring Daylight, BRE Information Paper 23/93 f3.50. (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges Communities and Local Government website with numerous downloadable documents, from:
http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/
Tree Specific

Websites

www.trees.org.uk Arboricultural Association www.rfs.co.uk Royal Forestry Society of England, Wales and N. Ireland

www.treehelp.Info The Tree Advice Trust

www.woodland-trust.org.uk The Woodland Trust www.treecouncil.org.uk The Tree Council

www.go-roavr.co.uk - portal for booking tree surveys UK wide.

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7.1 ROAVR has prepared this Report for the sole use of the above named Client/Agent in accordance with our terms of business, under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us.

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7.4 This report, site visit, plans and conclusions are proportional to the proposals and in some cases a simple plan based impact assessment may be all that is required.

7.5 Important - to ensure fair allocation of resources, we allow you ten working days to review the report and issue any feedback, beyond that changes are chargeable.

Should you require any further information, please do not hesitate to contact us at any time.

Mr. Alexander Barnes BSc Arb, MARborA
Consultant Arborist

ROAVR | GROUP

Alexander Barnes

Prepared by: Alexander Barnes
Checked by: Peter Haine

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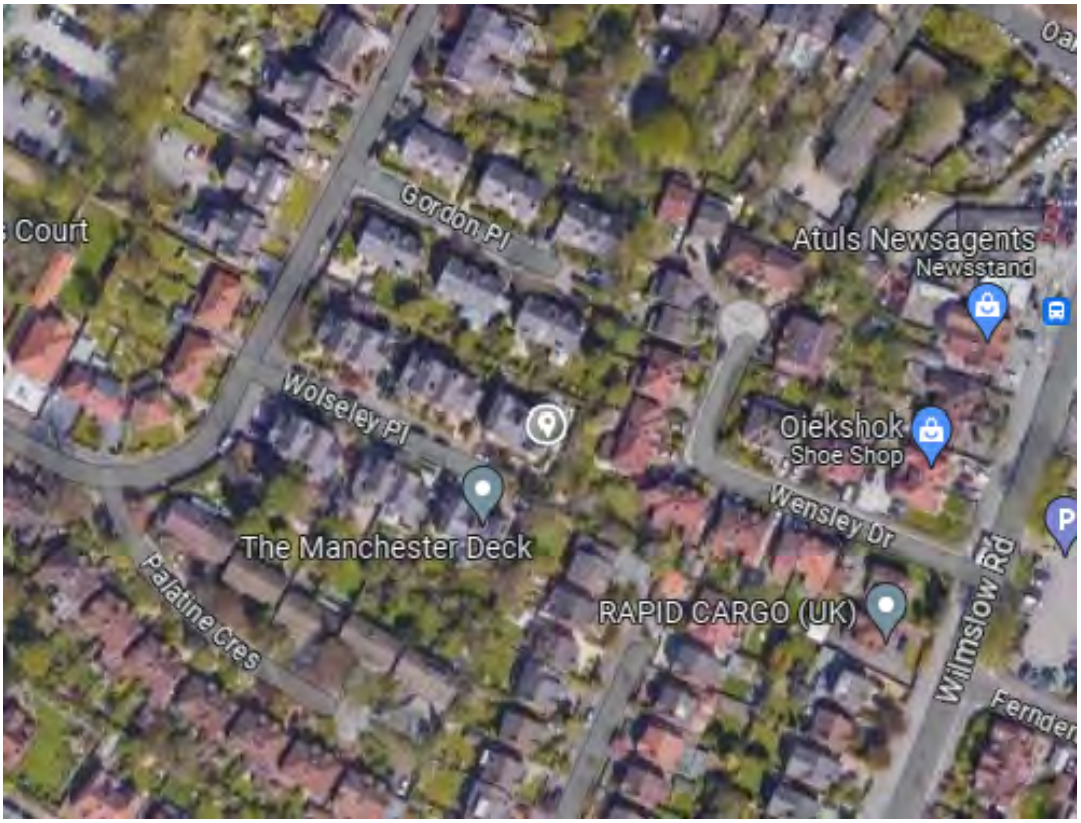
Appendix 1 – Site Location



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Appendix 2 – Arboricultural Data Tables

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Appendix 3 – Arboricultural Plans

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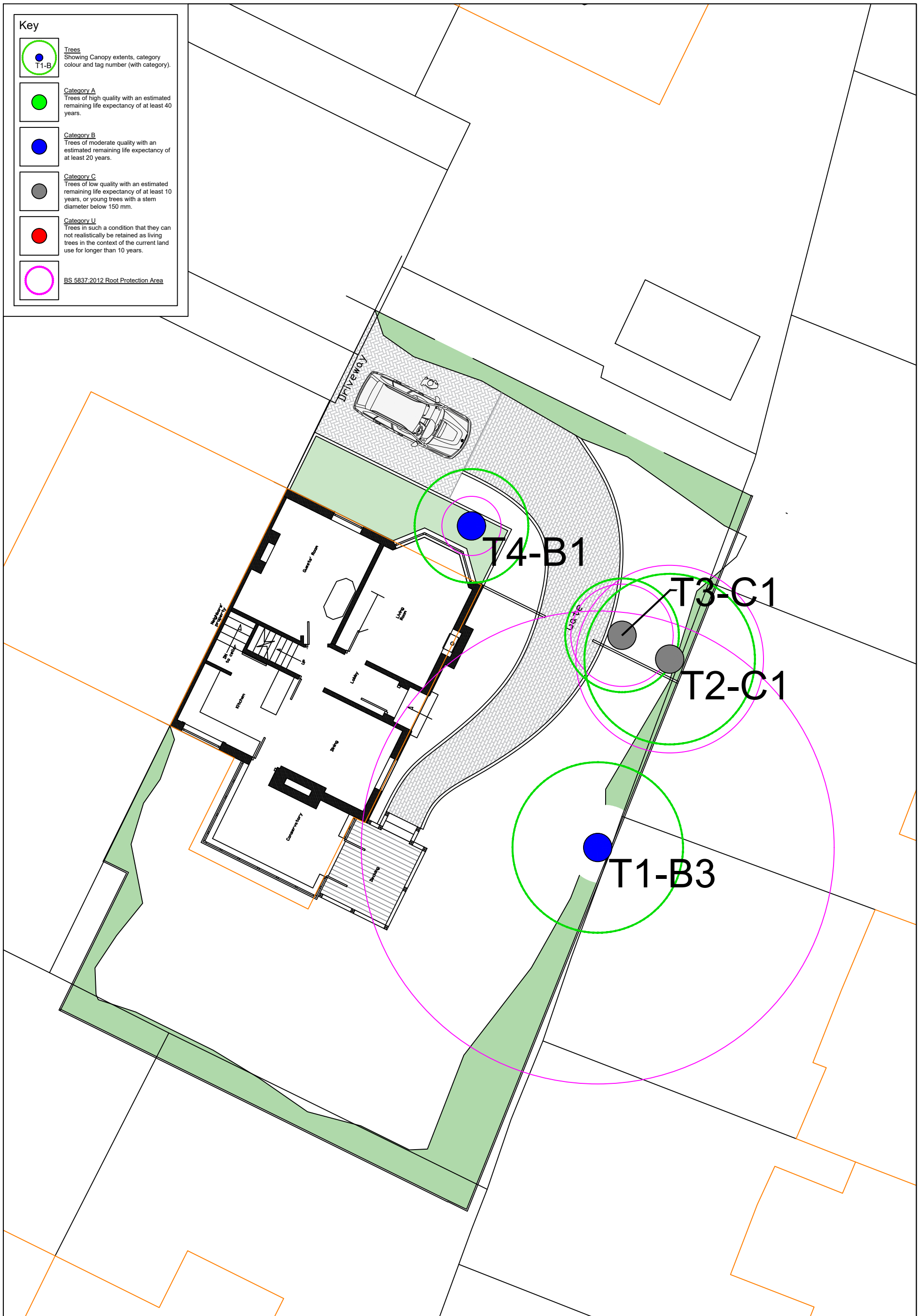
Tree Number	Species	Age Class	DBH	Height (crown height)	N	E	S	W	Condition	Life Expectancy	Physical Description	Comments	Managment Recommendations	RPA offset from stem.	Category Rating
T1	*Chamaecyparis lawsoniana (Lawson Cypress)*	*M*	*693*	*11(1)*	*1*	*3*	*3*	*3*	*Fair*	*10+*	*/*	*Unable to inspect stem due to undergrowth. Multiple stems below 1.5 m.Overmature lawsons cypress. Estimated DBH as the stems are inaccessible to measure. Tree has vastly outgrown its planting position.*	*/*	*8.32*	*B1*
T2	*Malus (Apple)*	*M*	*275*	*8(4)*	*4*	*3*	*3*	*3*	*Fair*	*10+*	*/*	*Inaccessible for thorough survey.*	*/*	*3.3*	*C1*
T3	*Sambucus nigra (Elder)*	*M*	*150*	*6(3)*	*3*	*2*	*2*	*2*	*Fair*	*10+*	*/*	*Garden ornamental elder.*	*/*	*1.8*	*C1*
T4	*Acer palmatum (Japanese Maple)*	*M*	*87*	*4(1)*	*1*	*2*	*2*	*2*	*Good*	*20+*	*/*	*/*	*/*	*1.04*	*B1*



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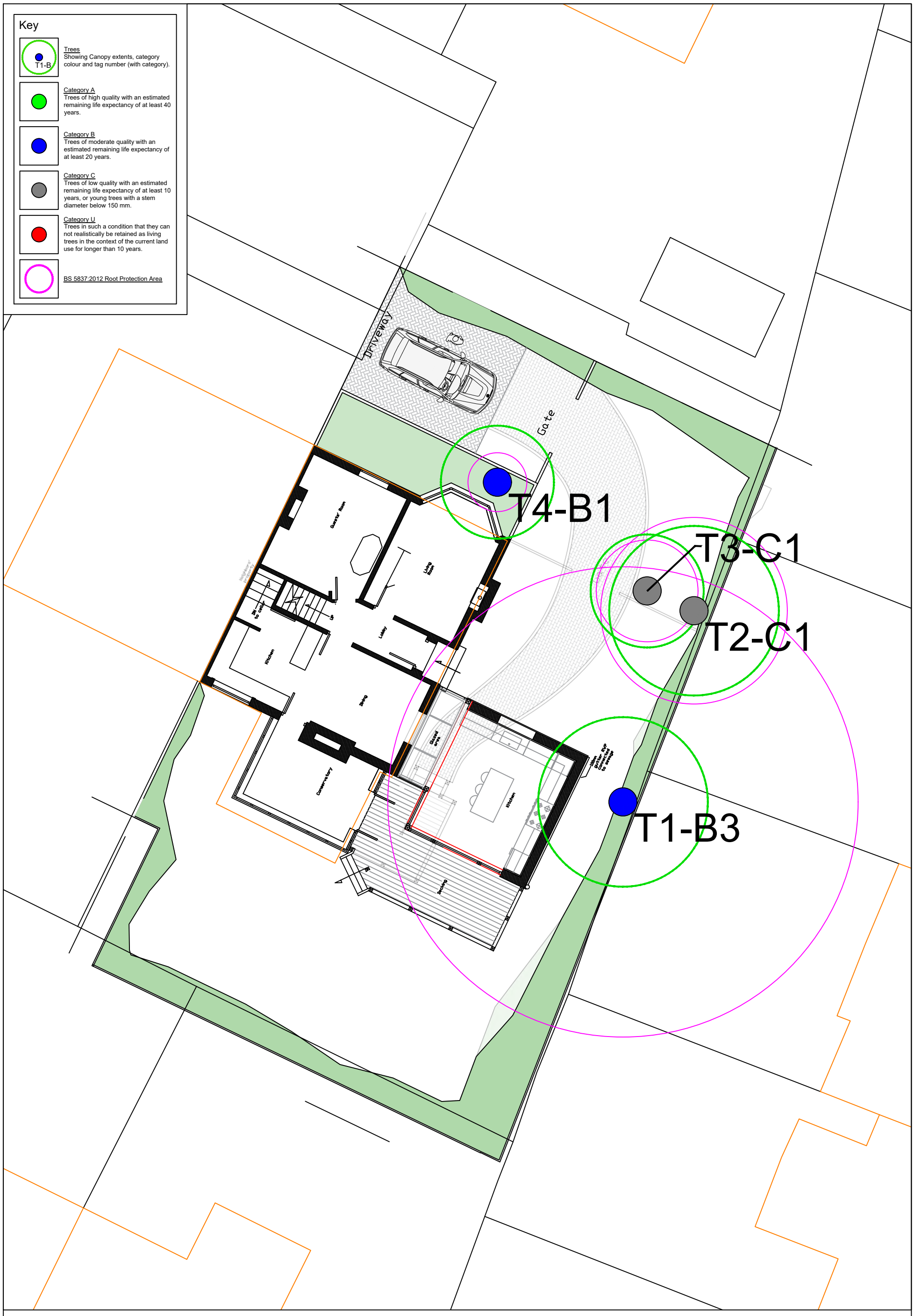
Drawing Title	Scale/Sheet	Date		
Tree Constraints Plan	1:125 @ A3	03/08/2023		
Client	Drawing No	Rev	Drawn By	Chked By
Mark Baker	23_5837_07_56	1	PH	MH
Site/Project	**General Notes**			
10 Gordon Place M20 3LD	Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements. Depictions of tree canopies are based on measurements taken to four cardinal compass points. No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan. The original of this drawing was produced in colour; a monochrome copy should not be relied upon. All rights reserved.			

N

1:125

0 5m



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Drawing Title	Scale/Sheet	Date		
Tree Assessment Plan	1:125 @ A3	03/08/2023		
Client	Drawing No	Rev	Drawn By	Chked By
Mark Baker	23_5837_07_56	1	PH	MH
Site/Project	General Notes			
10 Gordon Place M20 3LD	Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements. Depictions of tree canopies are based on measurements taken to four cardinal compass points. No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan. The original of this drawing was produced in colour; a monochrome copy should not be relied upon. All rights reserved.			

N

1:125

0 5m

Key

Trees
Showing Canopy extents, category colour and tag number (with category).

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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.

Category U
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.

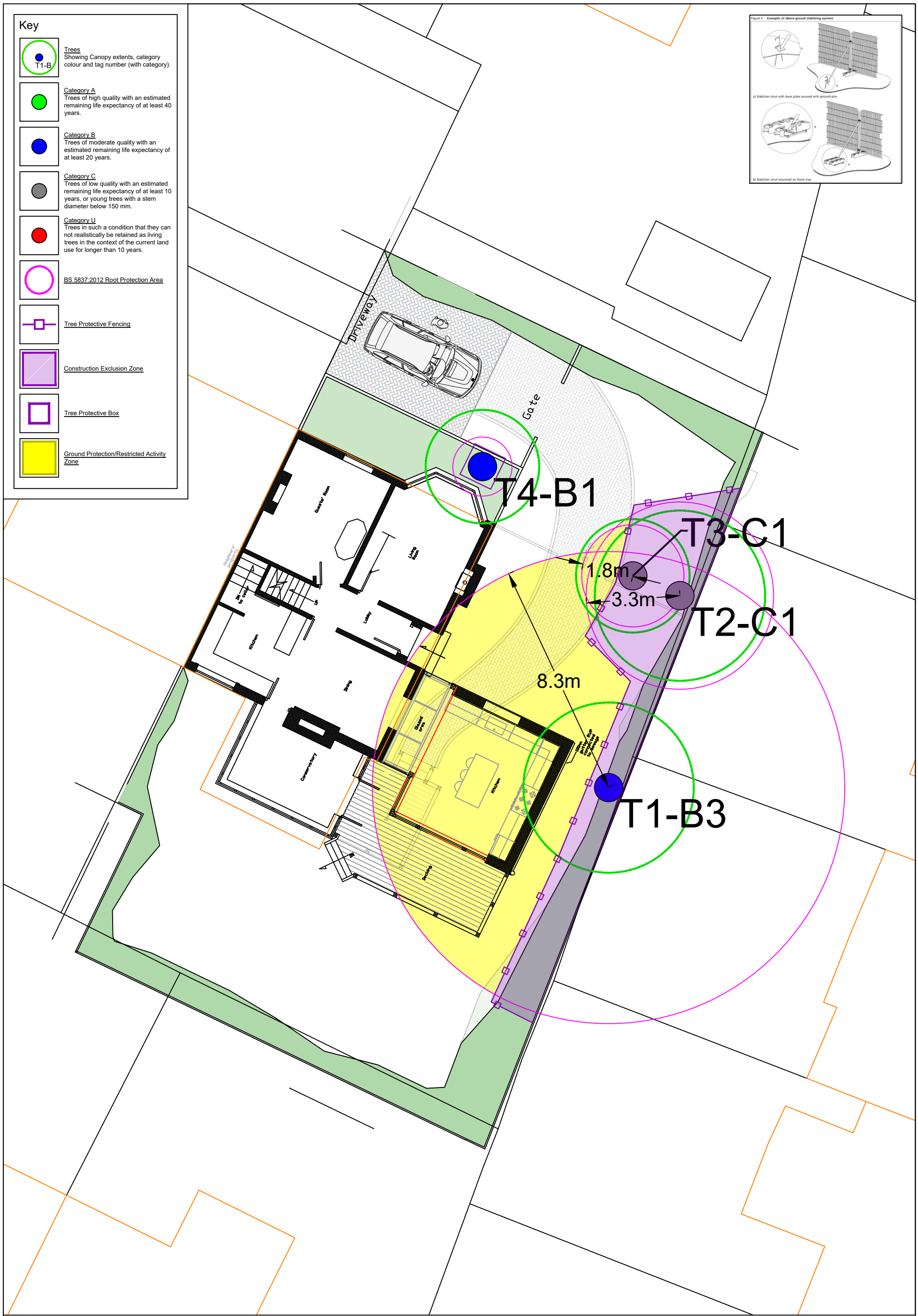
BS 5837:2012 Root Protection Area

Tree Protective Fencing

Construction Exclusion Zone

Tree Protective Box

Ground Protection/Restricted Activity Zone



ROAVR | GROUP ROAVR Group, Marr House Beechwood Business Park, Inverness, IV2 3BW www.roavr-group.co.uk support@roavr-group.co.uk 01463 667302	Drawing Title **Tree Protection Plan**	Scale/Sheet 1:125 @ A3	Date 16/08/2023		
	Client Mark Baker	Drawing No 23_5837_07_56	Rev 1	Drawn By PH	Chked By MH
	Site/Project 10 Gordon Place M20 3LD	**General Notes** Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements. Depictions of tree canopies are based on measurements taken to four cardinal compass points. No liability of any kind Is accepted for any omissions or inaccuracies in respect of this plan. The original of this drawing was produced in colour; a monochrome copy should not be relied upon. All rights reserved.			

N

1:125

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