



ROAVR | GROUP

Project: 23_5837_02_32
Site: Glen Lea, Church Hill, West End, Southampton, SO30 3AT
Client: Samantha Green



*This Report is the copyright of Woodland Solutions (Northern) LTD t/a ROAVR Group.
Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited*

Document Title:	Tree Survey & Arboricultural Impact Assessment
Document Author:	Peter Haine FDSc Arb, MArborA
Project Title:	Glen Lea, Church Hill, West End, Southampton, SO30 3AT

Revision History.

Date:	Version number:	Summary of changes:
23/02/23	1.0	First Draft
27/04/2023	1.0	First Issue

Distribution.

Approved by:	Signature	Date:	Version:
Matt Harmsworth	MWH	27/04/2023	1.0
Samantha Green	SG	27/04/2023	1.0
			Reviewed before issue.

Re-Survey Date.

Survey Type:	Lifecycle:	Re-survey Date:
BS5837: 2012	Planning Only	n/a

FAO: Samantha Green

eMail:



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 Glen Lea, Church Hill, West End, Southampton, SO30 3AT.

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.

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

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

Tree Survey & Arboricultural Impact Assessment to BS 5837 2012 of trees at: Glen Lea, Church Hill, West End, Southampton, SO30 3AT.

1 Scope

- 1.1 We have recently been instructed to undertake an appraisal of mature tree cover at Glen Lea, Church Hill, West End, Southampton, SO30 3AT.
- 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 23/02/23 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.

Photographic Plates.



Photographic plate showing main entrance to Glen Lea just off Church Hill.



Photographic plate showing T29.



Photographic plate showing rear garden.



Photographic plate showing proposed extension area.

2. Site Conditions & Site Surroundings

- 2.1 The site is situated in Southampton in the Eastleigh Borough Council control area. The site is located on the east side of the town and has a suburban feel.
- 2.2 The site is home to a detached dwelling with associated hard and soft landscape.
- 2.3 The wider locality is predominantly residential. The site is accessed via the main driveway just off Church Hill Road.
- 2.4 A desktop assessment has highlighted that site is not within a Conservation Area, but there are three TPO protected trees in the garden at the rear and side, as well as the linear feature at the front following the road.
- 2.5 All desktop assessment data was cross checked and validated on the 23/02/23 using the web portal provided by the local planning authority.

<https://emaps.eastleigh.gov.uk/WebMaps/Map.aspx?MapName=Trees&initialDialog=layersDialog>

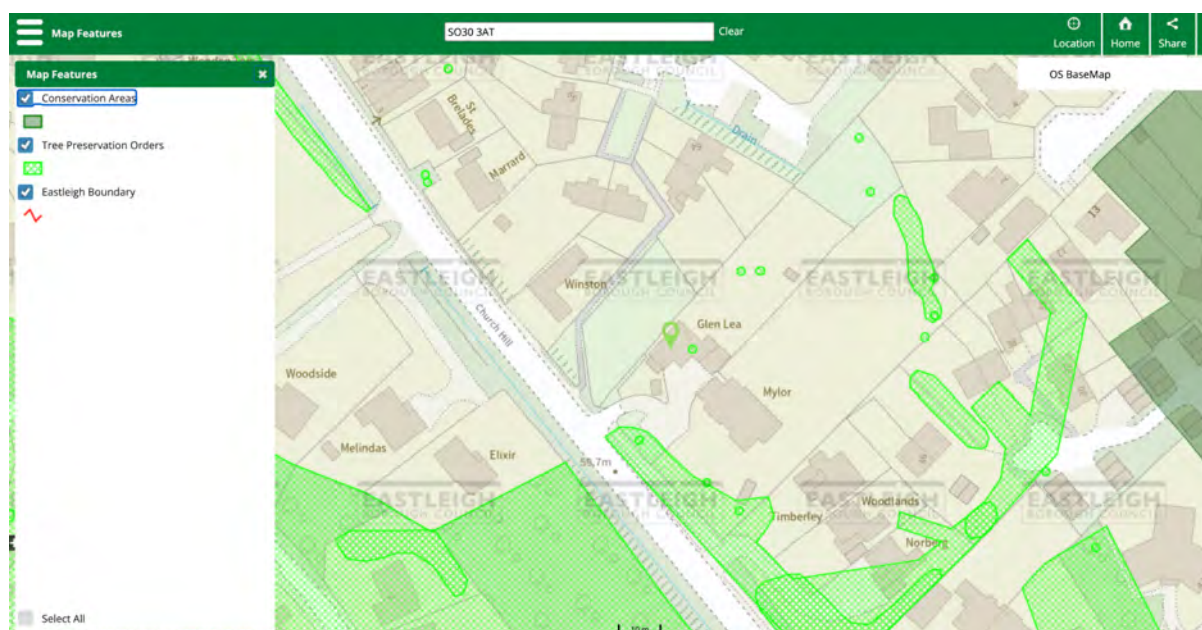


Image plate showing the desktop analysis results of the surveyed plot.

- 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/ukxi/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>

- 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 a tree protection plan.
- 3.2 The tree constraints plan has been produced using a Topographical plan. 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.

4. Arboricultural Impact Assessment - Site Specific

Tree Quality Statement.

The tree cover at Glen Lea includes some significant mature trees with good amenity value, they also provide excellent screening from the road and surrounding plots.

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:
2965/07 05 Proposed Site and Floor Plan	20/04/2023	27/04/2023

4.1.1. It is proposed to construct a detached annexe building in the rear garden.

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

Trees Potentially Affected:

Tree or Tree Group	Impacts
Trees T1-T33	No direct impacts, can be retained and protected with temporary HERAS fencing and/or ground protection measures.
Tree T34	Underground services will run through Root Protection Area. Proposed patio/deck area will encroach into Root Protection Area
Tree T35-T37	No direct impacts, can be retained and protected with temporary HERAS fencing and/or ground protection measures.
T38	Requires removal as is in direct conflict with proposed garden building.
T39	Proposed garden building will encroach into Root Protection Area.
T40	Proposed garden building, patio/deck, and underground services will encroach into Root Protection Area.
T41-T49	No direct impacts, can be retained and protected with temporary HERAS fencing and/or ground protection measures.

Hedgerows H1, H2, & H3	No direct impacts, can be retained and protected with temporary HERAS fencing and/or ground protection measures.
------------------------	--

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

4.2. Tree Removal.

4.2.1. One low quality tree is to be removed to facilitate the proposals.

4.3. Mitigation Planting.

4.3.1. There is ample scope to plant one or two more trees within the site to mitigate against tree loss, however there is already extensive tree cover within the site.

4.4. Impact on Tree Canopies.

4.4.1. No pruning works are required to facilitate the proposed development.

4.5. Impact on Tree Roots.

4.5.1. Trees will require temporary protective measures to be installed for the duration of the construction works, these are specified in the appended Arboricultural Method Statement.

4.5.2. The proposed garden building will encroach into the Root Protection Areas of T39 and T40. It is proposed to construct the building using mini screw piles, these can be installed with minimal impacts to tree roots. The base of the building should be set above existing ground level to allow air and water to reach the soil below.

4.6. New Surfaces.

4.6.1. A new patio is proposed within the Root Protection Area of T34 and T40. It is recommended that a timber deck is constructed above ground, this will minimise impacts on tree roots and allow air and water to reach the soil.

4.7. Underground Services.

4.7.1. Electricity and water will be supplied via an agreed service route, this will be excavated by hand where it passes through the Root Protection Area of trees. A septic tank and soakaway will be installed outside the RPA of all retained trees.

4.8 Changes in Ground Levels.

4.8.1 No changes are to be made to ground levels outside the footprint of the proposed as shown on the Tree Assessment Plan.

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.

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. T37 and T39 are close to the proposed building, but the presence of tree canopies nearby is desirable to soften the appearance of the building in the natural landscape. Adequate space has been allowed between all other 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 construct a detached garden building, set on screw piles to minimise the impacts on tree roots. New services will be installed in agreed locations to minimise the impacts on tree roots, and where passing through Root Protection Areas is unavoidable the excavation will be completed by hand. The trees will require temporary protective measures to be installed for the duration of the project, these are specified in the appended Arboricultural Method Statement.

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.

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 (Section 5 -10 where applicable and commissioned)

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.

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.

Document Title:	Arboricultural Method Statement
Document Author:	Peter Haine FDS Arb, MArborA
Customer Name:	Samantha Green
Project Title:	Glen Lea, Church Hill, West End, Southampton, SO30 3AT

Revision History.

Date:	Version number:	Summary of changes:
28/04/2023	1.0	First Draft
28/04/2023	1.0	Final Issue

Distribution.

Approved by:	Signature	Date:	Version:
Matt Harmworth	MWH	28/04/2023	1.0
Samantha Green	SG	28/04/2023	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.

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

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).

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
T33	Retain and protect with HERAS fencing	Pre-start
T34	Retain and protect with HERAS fencing and ground protection boarding.	Pre-start
T35, T36, H3	Retain and protect with HERAS fencing.	Pre-start
T37	Retain and protect with HERAS fencing and ground protection boarding.	Pre-start
T39-T49	Retain and protect with HERAS fencing and ground protection boarding.	Pre-start

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

1.5. Timing of Operations

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

<i>Order Activity</i>	<i>Phase</i>	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	Construction works commence with regular ACoW visits
5th Phase		Post Construction Phase	Remove tree protection measures and carryout any remedial works such as alleviation and radial mulching

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.

1.7. Restricted Activity Zones - Construction Access

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

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 -Installation of Screw Piles, Excavation of Service Trenches, and installation of timber Deck

Within the Restricted Activity Zones it is proposed to install screw piles and excavate for underground services.

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

Each pile position must be checked for roots prior to installation. This can be done using a probe inserted a minimum of 600mm into the ground, or by hand digging a trial pit. If roots are discovered then the pile must be relocated slightly to avoid striking the root.

No excavation other than removal of turf is permitted in this area.

Excavation for service trenches in this area must be carried out by hand and under the supervision of the project arborist.

Any roots in excess of 25 encountered must be retained.

Any roots between 10-25 mm which are severed shall be cleanly cut back to the edge of the excavation.

Any exposed roots must be covered with damp hessian to prevent drying, and the trench backfilled with clean soil as quickly as possible.

A timber deck is to be installed, where the supporting posts are set within the Restricted Activity Zone the following shall apply:

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 .

Roots in excess of 25mm shall be retained.

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

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).

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

5.12.1. 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 the manner detailed in section 1.8.

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).

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.

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.

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.

<i>Order Activity</i>	<i>Phase</i>	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 excavation of service trench
5th Phase		Post Construction Phase	ACoW visit to supervise removal of protection measures and final site sign off.

Example ACoW sheet.



Woodland Solutions (Northern) Ltd t/a ROAVR Group
The Green House
Beechwood Business Park North
Inverness
IV2 3BL
www.roavr-group.co.uk
T: 01463 667302

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:

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:

<i>Tree no.</i>	Works Required	Phase Timing
T38	Fell to facilitate project	Pre-start

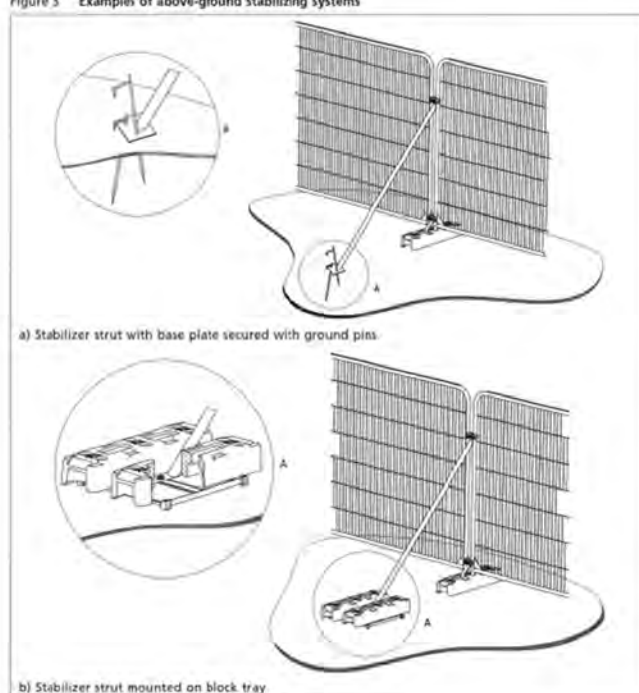
4. Tree Protection Barriers Detailed Specification

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. Where existing permanent fencing aligns with the position of Tree Protection Fencing it may be retained and no additional barriers need to be erected. The temporary 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



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.



PROTECTION FENCING

THIS FENCE MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.

TREE PROTECTION AREA KEEP OUT!

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECT OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PROTECTION ORDER MAY
LEAD TO CRIMINAL PROSECUTION.

ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY.

Example signage.

5. Ground Protection Measures Detailed Specification

Where indicated on the Tree Protection Plan (Restricted Activity Zones), 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 150mm 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.

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 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.

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](http://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

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.

7. Limitations

- 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.
- 7.2 This Report may not be relied upon by any other party without the prior and express written agreement of ROAVR. The assessments made assume that the land use will continue for their current purpose without significant change. ROAVR has not independently verified information obtained from third parties.
- 7.3 This report, video walkthrough, data tables and raw data remain the copyright of ROAVR until such time as any monies owed are settled in full and the report may be withdrawn at any time.
- 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.

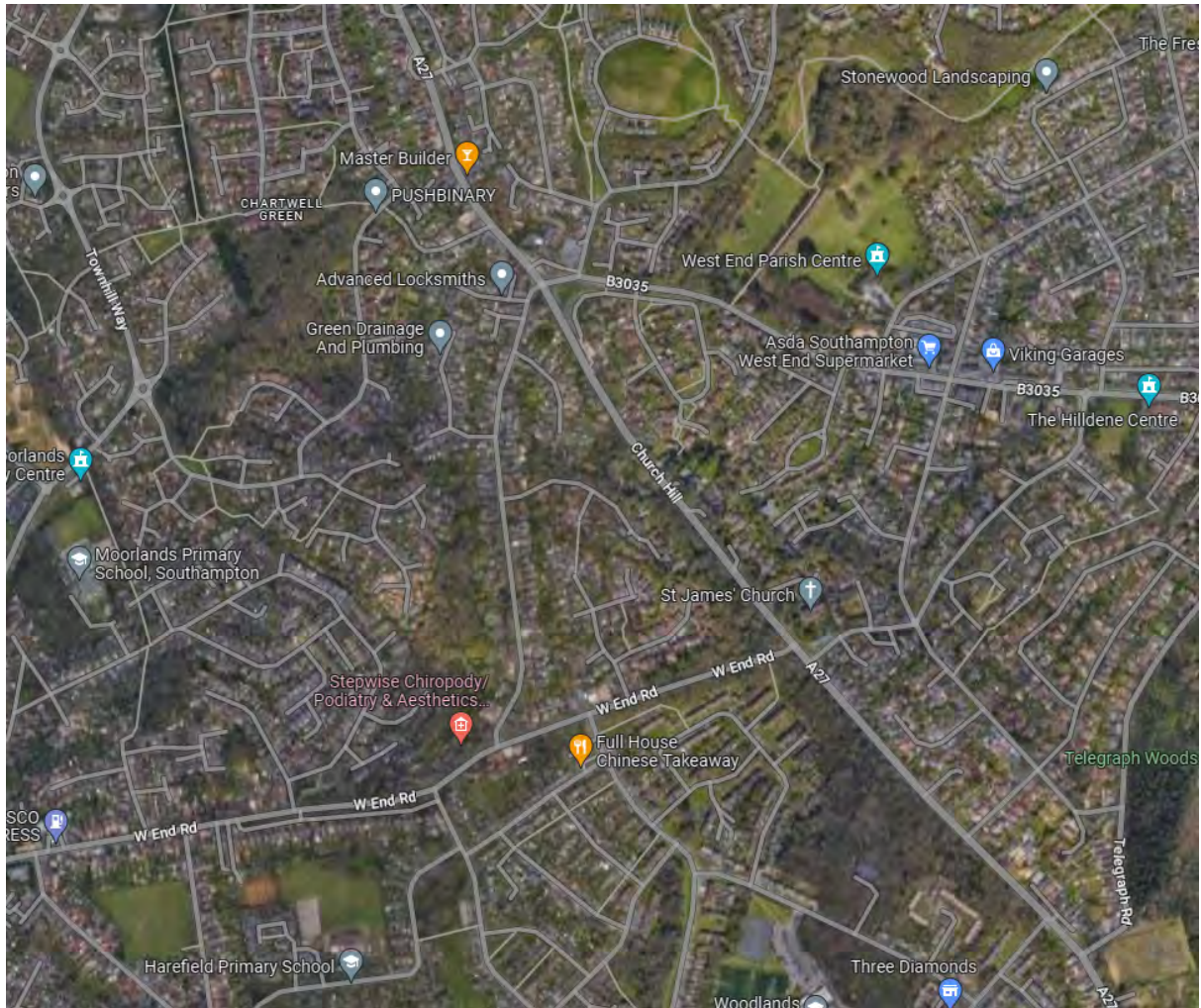
Mr. Peter Haine FDSc Arb
Consultant Arborist



ROAVR | GROUP

Prepared by: Peter Haine
Checked by: Matt Harmsworth

Appendix 1 – Site Location



Appendix 2 – Arboricultural Data Tables

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	<i>Castanea sativa</i> (Sweet Chestnut)	M	250	19(4)	4	4	4	2	Good	20+	Tree located within raised bed. Stem divides at ground level. Mechanical Damage.	/	/	5.2	B1
T2	<i>Castanea sativa</i> (Sweet Chestnut)	M	600	19(4)	5.5	2	5	2	Good	20+	Tree located within raised bed. Mechanical Damage. Low branches over road/footpath.	/	/	7.2	B1
H1	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress), <i>Prunus laurocerasus</i> (Cherry Laurel)	Y	100	5(0.5)	1	1	1	1	Fair	10+	Tree located within raised bed. Mechanical Damage.	/	/	1.2	C3
T3	<i>Gleditsia triacanthos</i> (Honey Locust)	M	700	22(4)	5	5	5	5	Fair	10+	Low vitality. Declining. Mechanical Damage. Broken branches in crown. Major deadwood in crown. Low branches over road/footpath.	/	/	8.4	C1
T4	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress)	M	300	18(3)	2.5	2.5	2.5	2.5	Fair	10+	Tree located within hard surface area. Mechanical Damage.	/	/	3.6	C1
T5	<i>Gleditsia triacanthos</i> (Honey Locust)	M	300	22(4)	2	2	3	3	Fair	10+	Declining. Mechanical Damage. Broken branches in crown. Major deadwood in crown. Low branches over road/footpath.	/	/	5.09	C1
T6	<i>Fraxinus excelsior</i> (Ash)	M	250	19(8)	2	2	2	2	Fair	10+	Ivy on tree. Unable to inspect stem due to Ivy. Mechanical Damage.	/	/	3	C1
T7	<i>Fraxinus excelsior</i> (Ash)	M	200	13(8)	1	1	2	2	Fair	10+	Ivy on tree. Unable to inspect stem due to Ivy. Mechanical Damage.	/	/	2.4	C1
T8	<i>Gleditsia triacanthos</i> (Honey Locust)	EM	200	13(6)	1	4	4	1	Poor	<10	Low vitality. Declining. Mechanical Damage. Broken branches in crown. Major deadwood in crown. Low branches over road/footpath.	/	/	2.4	U
T9	<i>Acer pseudoplatanus</i> (Sycamore)	M	500	22(6)	5	3	5	5	Good	20+	Tree located within hard surface area. Ivy on tree. Mechanical Damage.	/	/	6	B1
T10	<i>Acer pseudoplatanus</i> (Sycamore)	M	500	22(6)	6	6	6	3	Good	20+	Tree located within hard surface area. Ivy on tree. Mechanical Damage.	/	/	6	B1
T11	<i>Quercus robur</i> (Common Oak)	M	300	19(6)	4	4	4	2	Good	20+	Epicormics on stem. Mechanical Damage.	TPO ref 60-H	/	3.6	B1
T12	<i>Prunus laurocerasus</i> (Cherry Laurel)	EM	200	5(1)	2	2	2	2	Fair	10+	Poor shape & form. Stem divides at ground level. Mechanical Damage.	/	/	4.15	C1
T13	<i>Fraxinus excelsior</i> (Ash)	M	300	22(13)	3	3	3	3	Good	20+	/	/	/	3.6	B1
H2	<i>Prunus laurocerasus</i> (Cherry Laurel)	SM	90	3(0.5)	1.5	1.5	1.5	1.5	Fair	10+	/	/	/	1.08	C3
T14	<i>Pinus sylvestris</i> (Scots Pine)	M	300	15(5)	1	5	5	1	Fair	10+	Poor shape & form. Unable to inspect stem due to Ivy. Major bark wounding on stem. Mechanical Damage.	/	/	3.6	C1
T15	<i>Betula pendula</i> (Silver Birch)	M	300	20(6)	3	4	4	3	Good	20+	Ivy on tree. Mechanical Damage.	/	/	3.6	B1

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
T16	<i>Betula pendula</i> (Silver Birch)	M	300	20(6)	3	3	2	3	Fair	10+	Leaning West. Ivy on tree. Mechanical Damage.	/	/	5.09	C1
T17	<i>Thuja plicata</i> (Western Red Cedar)	M	400	21(4)	3.5	3.5	3.5	3.5	Good	40+	/	/	/	4.8	A1
T18	<i>Betula pendula</i> (Silver Birch)	M	170	13(6)	2	2	2	0.5	Poor	<10	Low vitality. Declining. Ivy on tree. Fungal brackets visible on stem. Mechanical Damage.	/	/	2.04	U
T19	<i>Betula pendula</i> (Silver Birch)	M	90	13(6)	0.5	0.5	0.5	0.5	Poor	<10	Low vitality. Declining. Ivy on tree. Mechanical Damage.	/	/	1.08	U
T20	<i>Betula pendula</i> (Silver Birch)	M	120	13(6)	0.5	0.5	0.5	0.5	Poor	<10	Low vitality. Declining. Ivy on tree. Mechanical Damage.	/	/	1.44	U
T21	<i>Betula pendula</i> (Silver Birch)	M	200	20(6)	4	2	2	4	Good	20+	Mechanical Damage.	/	/	2.4	B1
T22	<i>Betula pendula</i> (Silver Birch)	M	300	20(6)	4	4	2	4	Good	20+	Mechanical Damage.	/	/	3.6	B1
T23	<i>Thuja plicata</i> (Western Red Cedar)	M	700	21(4)	4	4	4	4	Good	40+	/	/	/	8.4	A1
T24	<i>Fagus sylvatica</i> (Beech)	M	500	22(3)	5	5	3	5	Good	20+	/	/	/	6	B1
T25	<i>Taxus baccata Fastigiata</i> (Yew)	Y	100	7(2)	3	3	3	3	Fair	10+	/	/	/	1.69	C1
T26	<i>Betula pendula</i> (Silver Birch)	M	400	20(6)	3.5	3.5	3.5	3.5	Good	20+	Ivy on tree. Unable to inspect stem due to Ivy. Mechanical Damage.	/	/	4.8	B1
T27	<i>Acer pseudoplatanus</i> (Sycamore)	Y	100	7(4)	2	2	2	2	Poor	<10	Poor shape & form.	Notch cut out of stem.	/	1.2	U
T28	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress)	M	400	19(1)	3	3	3	3	Good	20+	/	/	/	4.8	B1
T29	<i>Pinus sylvestris</i> (Scots Pine)	M	400	23(10)	4	4	2	2	Good	40+	Mechanical Damage.	/	/	4.8	A1
T30	<i>Thuja plicata</i> (Western Red Cedar)	Y	100	8(1)	2	0.5	2	2	Fair	10+	Mechanical Damage.	/	/	1.69	C1
T31	<i>Thuja plicata</i> (Western Red Cedar)	M	300	15(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	3.6	B1
T32	<i>Ilex aquifolium</i> (Holly)	EM	150	6(1.5)	1.5	1.5	1.5	1.5	Poor	<10	Poor shape & form. Low vitality. Declining. Ivy on tree. Unable to inspect stem due to Ivy. Mechanical Damage.	/	/	3.6	U
H3	<i>Ilex aquifolium</i> (Holly), <i>Prunus laurocerasus</i> (Cherry Laurel), <i>Corylus avellana</i> (Hazel)	SM	150	7(0.5)	1.5	1.5	1.5	1.5	Fair	10+	Stem divides at ground level. Mechanical Damage. Broken branches in crown.	/	/	1.8	C3
T33	<i>Thuja plicata</i> (Western Red Cedar)	M	800	21(1)	5	4	5	5	Good	20+	Mechanical Damage.	TPO ref 60-H	/	9.6	B1
T34	<i>Thuja plicata</i> (Western Red Cedar)	M	800	21(1)	5	4	5	4	Good	20+	Mechanical Damage.	TPO ref 329-E	/	9.6	B1

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
T35	<i>Acer pseudoplatanus</i> (Sycamore)	M	300	7(3)	3	2	2	3	Fair	10+	Poor shape & form. Mechanical Damage.	/	/	3.6	C1
T36	<i>Malus</i> (Apple)	SM	150	5(1.5)	1	2	2	1	Poor	<10	Low vitality. Declining.	/	/	2.54	U
T37	<i>Acer pseudoplatanus</i> (Sycamore)	M	200	7(3)	3	3	3	3	Fair	10+	Poor shape & form. Mechanical Damage.	/	/	2.4	C1
T38	<i>Acer pseudoplatanus</i> (Sycamore)	M	170	7(3)	2	2	2	2	Fair	10+	Poor shape & form. Mechanical Damage.	/	/	2.04	C1
T39	<i>Thuja plicata</i> (Western Red Cedar)	M	500	21(1)	4	4	3	4	Good	20+	Mechanical Damage.	/	/	6	B1
T40	<i>Thuja plicata</i> (Western Red Cedar)	M	700	21(1)	4	4	4	4	Good	20+	Mechanical Damage.	/	/	8.4	B1
T41	<i>Thuja plicata</i> (Western Red Cedar)	M	300	21(1)	2	2	2	2	Good	20+	Mechanical Damage.	/	/	3.6	B1
T42	<i>Thuja plicata</i> (Western Red Cedar)	M	300	21(1)	2	2	2	2	Good	20+	Mechanical Damage.	/	/	3.6	B1
T43	<i>Thuja plicata</i> (Western Red Cedar)	M	500	21(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	6	B1
T44	<i>Thuja plicata</i> (Western Red Cedar)	M	400	21(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	4.8	B1
T45	<i>Thuja plicata</i> (Western Red Cedar)	M	400	21(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	4.8	B1
T46	<i>Thuja plicata</i> (Western Red Cedar)	M	400	21(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	4.8	B1
T47	<i>Thuja plicata</i> (Western Red Cedar)	M	400	21(1)	3	3	3	3	Good	20+	Mechanical Damage.	/	/	4.8	B1
T48	<i>Prunus laurocerasus</i> (Cherry Laurel)	M	300	7(1.5)	1	2	2	2	Fair	10+	Stem divides below 1.5m. Mechanical Damage.	/	/	5.09	C1
T49	<i>Prunus laurocerasus</i> (Cherry Laurel)	M	300	6(2)	2	2	3	2	Fair	10+	Mechanical Damage.	/	/	3.6	C1

Arboricultural Data Tables Terms.

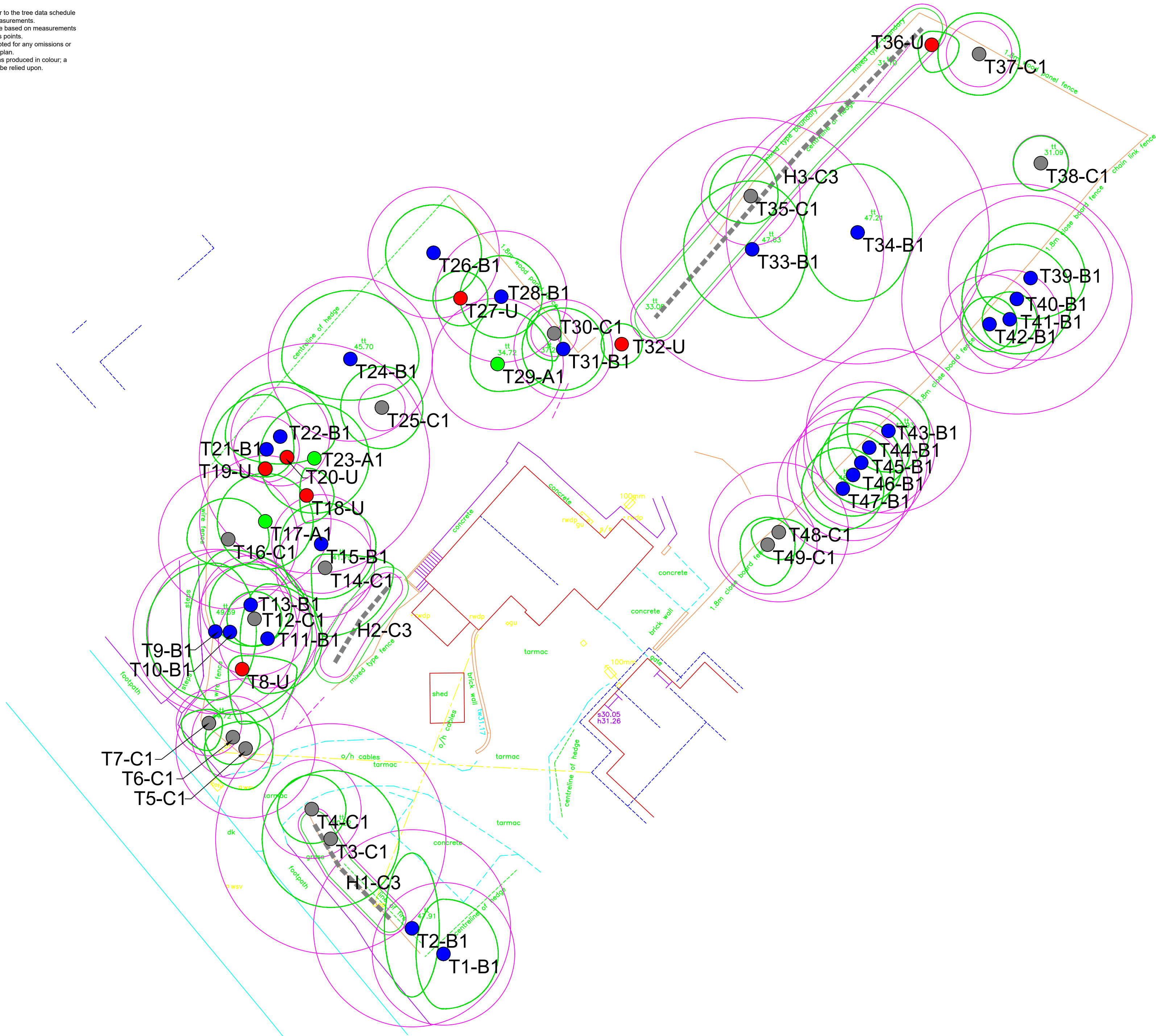
Tree ID	Reference no. T1, T2 etc. for trees; H for hedgerows; G for Groups and W for woodlands.
Tag Number	If the tree has been tagged with an 'arbo' tag then the physical tag number is listed in this column.
TPO Number	If the tree is subject to a TPO and it is known to us this will be recorded here.
In Conservation Area	Y/N - If the tree is located within a Conservation Area we may confirm that here.
Tree Type	Beech, Oak etc.
Common Name	Common Beech, Evergreen Oak etc.
Latin Name	Fagus sylvatica; Quercus robur - Latin names.
Maturity	The estimated age class of the tree (relative to species) o Y - Young o SM - Semi-mature o EM - Early-mature o M - Mature o OM - Over-mature or V - Veteran
Potential for Bat Habitat	Y/N - if the tree has cracks, cavities or suitable bat habitat it may require further ecological surveys and form a constraint on development.
Measurements Estimated (Y/N)	Y/N - if the tree is off site, covered with ivy, or some other restriction the British Standard allows for measurements to be estimated.
Height	Height of the tree in metres.
Height & Direction of 1st Significant Branch	Recorded to consider access.
Number of Stems	Number of clear stems.
Diameter at Breast Height	Diameter of stem (mm) at breast height (1.5 metres above ground).
Crown Spread	The maximum spread of the tree's canopy measured from the stem in four directions (North, East, South, West).
Canopy Height	The height between ground level and the lowest part of the canopy when considering access.
Crown / stem / Basal Condition	Good, Fair, Poor condition comments.
Category	Tree categorisation based on section 4.5 of BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendations. Four categories are used (A, B, C, U) with categories A, B & C being assigned one of three separate sub categories (1, 2 or 3): A – Trees of high quality with an estimated remaining life expectancy of at least 40 years. B – Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. C – Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm
Life Expectancy	Estimated safe, usable life expectancy.

Sub-Category	Subcategories: 1: Mainly arboricultural & aesthetic qualities 2: Mainly landscape qualities 3: Mainly cultural values, including conservation U – Trees 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
Physical Condition	Good, Fair, Poor condition considering the tree structure, form and vitality.
Management Recommendations	Recommendations (regardless of the development proposals if available) for removal, retention and/or remedial arboricultural works.
Comments	A brief description of the tree which refers to tree form, condition, health and significant defects. Comments regarding environmental conditions affecting the tree (e.g. ground conditions) will also be included where relevant.

Arboricultural data tables are essentially an asset register of the trees and tree cover on and adjacent to a development site. The information included within the tables is used to produce a tree constraints plan (TCP) which shows in 2D the constraints and opportunities on a particular site.

Appendix 3 – Arboricultural Plans

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.



Key

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

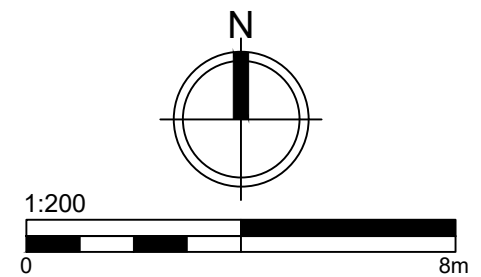
Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

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



Drawing Title
Tree Constraints Plan

Client
Samantha Green

Site/Project
Glen Lea, Church Hill, West End, Southampton, SO30 3AT

Scale/Sheet
1:200 @ A2

Date
03/03/2023

Drawing No
23_5837_02_32

Rev
1

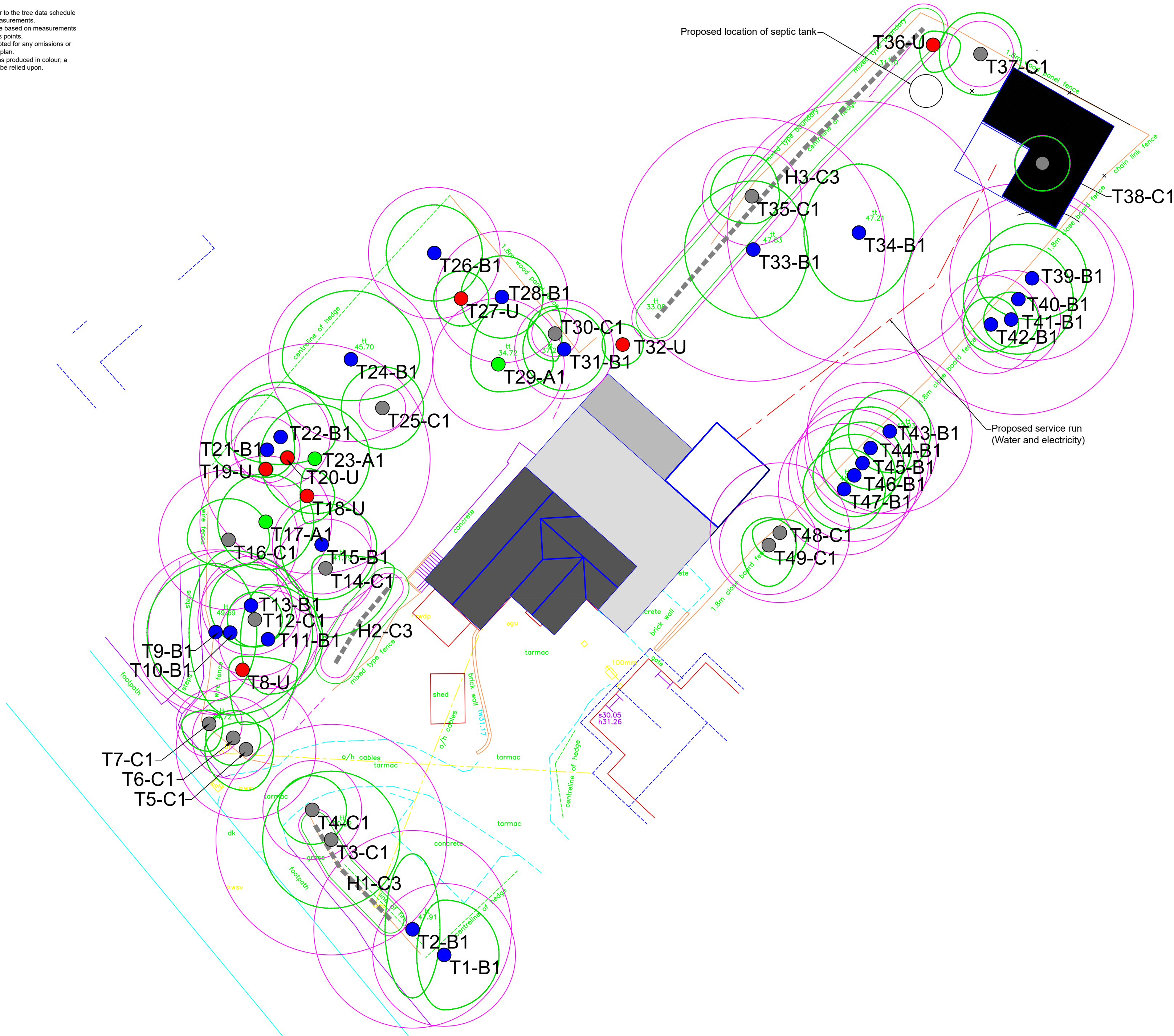
Drawn By
PH

Chkd By
MH

ROAVR | GROUP

ROAVR Group, Marr House
Beechwood Business Park, Inverness, IV2 3BW
www.roavr-group.co.uk
support@roavr-group.co.uk
01463 667302

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.



Key

T1-B
Trees
Showing Canopy extents, category colour and tag number (with category).

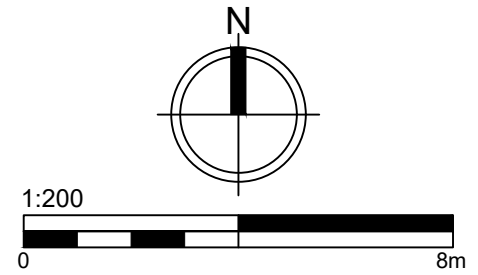
Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

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



Drawing Title
Tree Assessment Plan Annexe

Client
Samantha Green

Site/Project
Glen Lea, Church Hill, West End, Southampton, SO30 3AT

Scale/Sheet
1:200 @ A2

Date
27/04/2023

Drawing No
23_5837_02_32

Rev
1

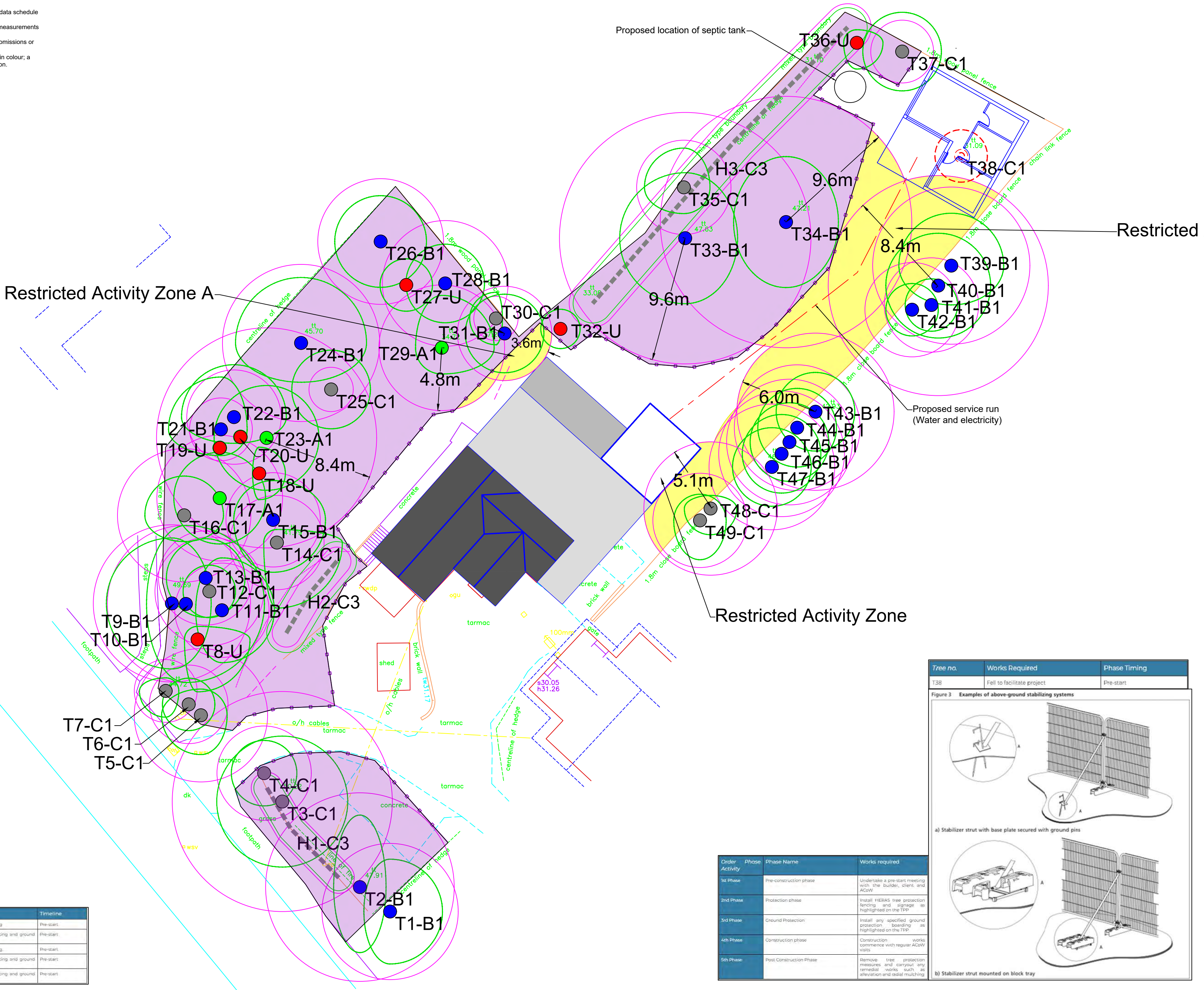
Drawn By
PH

Chkd By
MH

ROAVR | GROUP
ROAVR Group, Marr House
Beechwood Business Park, Inverness, IV2 3BW
www.roavr-group.co.uk
support@roavr-group.co.uk
01463 667302

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.

Tree no.	Protection Measures	Timeline
T33	Retain and protect with HERAS fencing	Pre-start
T34	Retain and protect with HERAS fencing and ground protection boarding	Pre-start
T35, T36, H3	Retain and protect with HERAS fencing	Pre-start
T37	Retain and protect with HERAS fencing and ground protection boarding	Pre-start
T38-T49	Retain and protect with HERAS fencing and ground protection boarding	Pre-start



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.

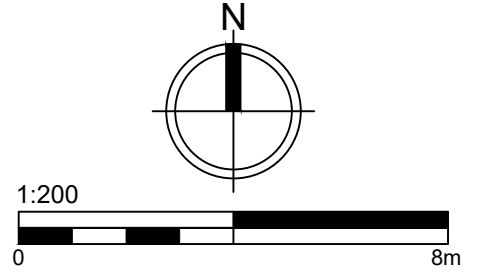
BS 5837:2012 Root Protection Area

Tree Protective Fencing

Ground Protection/ Restricted Activity Zone

Construction Exclusion Zone

Trees for Removal



Tree no.	Works Required	Phase Timing
T38	Fell to facilitate project	Pre-start

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

Order	Phase	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	Construction commence with regular ACoW visits
5th	Phase	Post Construction Phase	Remove tree protection measures and complete any remedial works such as alleviation and radial mulching

Tree Protection Plan Annex

Client
Samantha Green

Site/Project
Glen Lea, Church Hill, West End, Southampton, SO30 3AT

Scale/Sheet
1:200 @ A2

Date
28/04/2023

Drawing No
23_5837_02_32

Rev
1

Drawn By
PH

Chkd By
MH

ROAVR Group, Marr House
Beechwood Business Park, Inverness, IV2 3BW
www.roavr-group.co.uk
support@roavr-group.co.uk
01463 667302