

TREE SURVEY, ARBORICULTURAL IMPACT ASSESSMENT AND ARBORICULTURAL METHOD STATEMENT

A report to accompany a planning application for the demolition of the existing house and construction of a new two storey dwelling at 201 Reading Road, Wokingham, Berks, RG41 1LJ

Report by Philip Walker

*Checked and approved by Dr Martin Dobson
BSc (Hons) Biol, DPhil, FArborA, MEWI
Registered Consultant of the Arboricultural Association*

On the instructions of Riorden Welby

20th May 2025

MDA reference V23



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1. Instructions

- 1.1 Martin Dobson Associates Ltd (MDAL) was instructed by Riorden Welby on 17th December 2024 to carry out a BS5837: 2012 compliant survey of trees at 201 Reading Road, Wokingham, Berks, RG41 1LJ, and prepare a tree survey schedule and tree constraints plan, to inform architects of potential tree-related constraints on the site. MDAL was further instructed to prepare an arboricultural impact assessment to consider potential impacts of the proposal for the demolition of the existing house and construction of a new two storey dwelling and garage, and to recommend suitable mitigation for any impacts identified. The final instruction was to prepare a tree protection plan and an arboricultural method statement to provide a specification for tree protection during the proposed development.
- 1.2 The documents that have been provided for reference are as follows:
- 1) Topographical survey prepared by Land and Building Surveyors (plan reference number LDS/19098)
 - 2) Proposed plans by Jonathon Connolly Construction Studio Ltd – 290_P_10_02 P13

2. Introduction

- 2.1 The British Standard 5837: 2012 *Trees in relation to design, demolition and construction – Recommendations* provides a framework for considering trees in the planning process. It gives guidance on categorising the qualities of trees in order to enable decisions to be made as to which trees are appropriate for retention within a development. It then advises on options for protecting trees to be retained during the development (at all stages including demolition, construction and hard landscaping), and the means of incorporating trees into the developed landscape. This report has been prepared with reference to the recommendations of BS5837: 2012.
- 2.2 The proposed development that is considered in this report is for the demolition of the existing house and construction of a new two storey dwelling.
- 2.3 Trees that are assigned a BS5837: 2012 category of A or B, are considered to be of high value and should be considered for retention. Trees in category C should be retained where possible, but should not be considered a material constraint to development. Trees categorised as U are unsuitable for retention, usually because they are dead or dangerous, or have a very short safe useful life.
- 2.4 T1 is protected by a TPO (TPO 1402/2011, T1, Oak) and this means no work can be carried out to it (including cutting roots or branches or felling) without an application to the local planning authority. The tree is also recorded as a veteran tree, number 65555, in the Woodland Trust Ancient Tree Inventory.
- 2.5 The report considers which trees are suitable for retention within the proposed development, and makes recommendations for methods to ensure that retained trees will be protected from harm during preparatory works, demolition, and construction.

3. Tree survey

- 3.1 The tree survey was carried out by Philip Walker on 23rd December 2024. Tree heights and crown spreads were measured using a Nikon Range Finder or Trupulse laser and trunk diameters were measured at 1.5m above ground level using a diameter tape. Dimensions were estimated where access or visibility was restricted (e.g. if the tree was on neighbouring land).
- 3.2 Appended at **MD1** is the tree survey schedule which provides details of the five trees present within or immediately adjacent to the property.
- 3.3 The site survey drawing appended at **MD2**, based on the Land and Building Surveyors' topographical survey shows the positions of the surveyed trees and gives a reasonable indication of their comparative branch spreads. The drawing has been colour coded as follows:

A trees (high quality and value, minimum 40 years useful life) **LIGHT GREEN**

B trees (moderate quality and value, minimum 20 years useful life) **MID BLUE**

C trees (low quality and value, minimum 10 years useful life) **GREY**

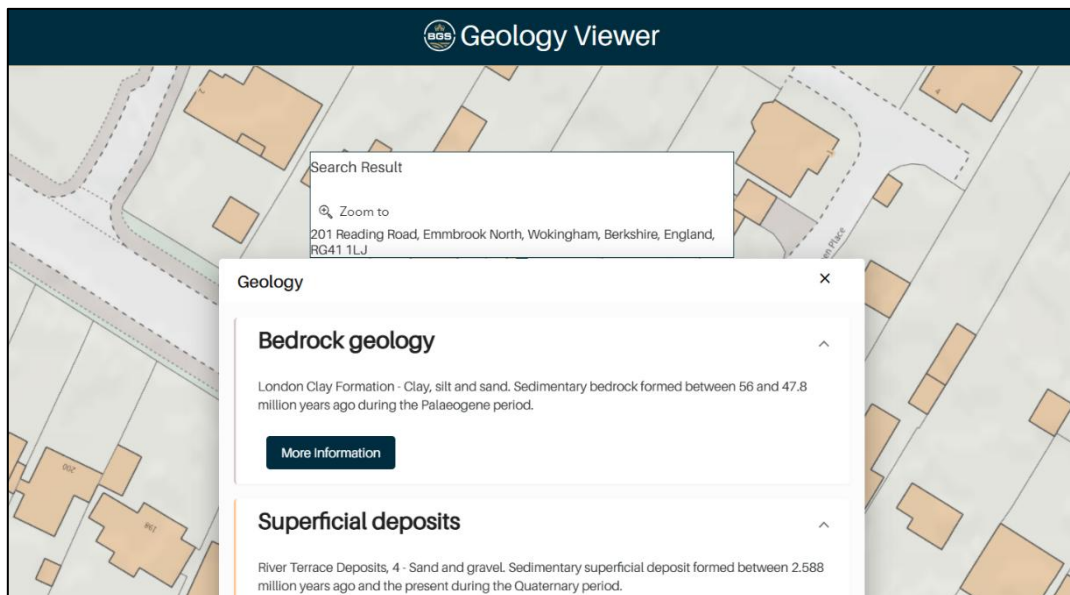
U trees (unsuitable or dead/dying/dangerous, less than 10 years useful life) **RED**

- 3.4 It should be understood that no individual safety inspection has been carried out on any tree. Similarly, any suggestions for tree work should not be taken as a specification for tree works.
- 3.5 Of the five trees surveyed one is considered to be category A and of high value (T1 oak) and the remainder are category C and of low value (T2 Laburnum, T3 Leyland cypress, T4 poplar, and T5 laurel). Additional trees are present at the rear of the rear garden, but they were not included in the survey as the development is relatively remote from them, and they can easily be isolated from the development by protective fencing.
- 3.6 Adequate protection, both above and below ground, is essential for trees that are to be retained as part of a development. The British Standard BS5837: 2012 *Trees in relation to design, demolition and construction - Recommendations* advises that there should be a root protection area (RPA) around trees which is kept free of construction activities by means of an exclusion zone enforced by protective fencing and/or ground protection. The RPA is calculated as the area equivalent to a circle with a radius of 12 times the trunk diameter at a height of 1.5 m above ground level. Based on the tree survey data root protection areas (and radial distances from the trunk to be protected) have been calculated and these are shown as circles around the trees on the tree constraints plan at **MD2** and are tabulated at **MD3**.

4. Soil assessment

- 4.1 BS5837: 2012 advises that soil properties should be considered as part of a tree survey report. This is necessary because trees can cause damage to structures founded on soils that shrink and swell with changes in moisture content (principally clays). Such movement is exacerbated by the influence of trees and therefore if a shrinkable soil is suspected foundations should be designed to extend below the likely zone of seasonal moisture change.
- 4.2 The British Geological Survey 1: 50,000 scale map indicates that the underlying geology of the site is shrinkable London Clay Formation – Clay, Silt and Sand (Figure 1). Thus, foundations will need to be designed to take account of trees. Oak is a high water demand species and the soil may have a high volume change potential and thus foundations in excess of 2m deep may be required. If site specific investigations confirm shrinkable clay then foundations should be designed with reference to the National House Building Council's Standards Chapter 4.2 *Building near trees* or similar guidance.

Figure 1. British Geological Survey 1: 50,000 scale map showing that the site is underlain by the London Clay Formation – Clay, Silt and Sand



5. Arboricultural impact assessment

- 4.1 The purpose of an arboricultural impact assessment (AIA) is to evaluate the direct and indirect effects of proposed development on trees and, where necessary, to consider appropriate mitigation. It should set out which, if any, trees are to be removed to facilitate the development and should consider the possible effects on retained trees of potentially damaging activities on the site (for example changes in ground level and installation of below ground services). Requirements for access around trees should be considered and potential conflicts identified, for example, where branches overhang the development area and may require pruning.
- 4.2 Mitigation for any issues identified should be proposed and addressed in the arboricultural method statement (AMS).
- 4.3 Oak T1 is considered by the Woodland Trust to be a veteran tree. As such government guidance indicates that it should have a root protection area with a radius of 15m. Calculating the RPA from the tree's diameter of 1270mm yields an RPA of 15m, and therefore this is in line with current guidance. Whilst I do not accept that tree roots will be restricted significantly by the adjacent road, as oak roots can grow well below road depth, to 3 – 4 m¹, I have shown a modified RPA which includes the pavement, but not the road.

Tree removals

- 4.4 The proposed development does not require the removal of any trees.

Tree pruning

- 4.5 No pruning work is required to facilitate the proposed development as there is sufficient space between the building and retained trees for all works to take place without conflicts arising.

Tree protection

- 4.6 Trees T1– T5 will be protected from mechanical damage to their trunks, branches and roots by the installation of 2m high protective fencing to create a construction exclusion zone (CEZ) to exclude site workers, machinery and storage of materials. The fencing around T1 is to extend around the trunk and the part of its RPA not currently covered by the existing tarmac driveway. There are mature trees northeast of T4 and T5, further into the garden. The fencing at the rear of the property will extend across the entire width of the garden to prevent any access to this area.
- 4.7 The current driveway is laid with tarmac and will remain as existing within the RPA of T1 to serve as ground protection during the demolition of the existing house and throughout the construction of the proposed new house. If any new surface dressing is required it will be added above the existing tarmac.

¹ I have personally investigated hundreds of subsidence claims involving oak trees where oak roots have been recovered underneath foundations from depths of 2 – 4 m.

6. Arboricultural method statement and tree protection plan

- 5.1 Trees can very easily be damaged during construction activities through their branches being broken by construction traffic passing close to the canopy or by root severance during the digging of foundation or service trenches. The majority of roots are to be found in the upper 600mm of soil and so even relatively shallow trenches can sever a significant number of roots growing across the direction of the trench. Similarly, the diameter of tree roots tapers sharply within a few metres of the trunk of a tree, so that what might seem to an uninitiated site worker to be an insignificant root (perhaps only a few centimetres in diameter) may actually be highly important.
- 5.2 Tree roots can also be damaged indirectly, often inadvertently, through soil compaction, which disrupts soil structure and can lead to root death through the development of anaerobic soil conditions. Spillage of toxic materials (e.g. oil or diesel) can also result in root damage and ultimately the death of a tree. Protection of the soil around trees by means of a construction exclusion zone (CEZ) is therefore vitally important in order to preserve roots undamaged.

Fencing and ground protection

- 5.3 Tree protection will comprise of 2m tall fencing installed in the positions shown at **MD4** before the building is stripped out, demolition commences, materials are delivered to site, or construction commences. The fencing will consist of a scaffold framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3 m (Figure 2). Onto this, weld mesh panels or 2 m high shuttering board will be securely fixed with wire or scaffold clamps. Un-braced weld mesh panels on unsecured rubber or concrete feet will not be used as these are not resistant to impact and are too easily removed by site operatives. An alternative system of bracing which does not require a scaffold framework is shown in Figure 3.

Figure 2. Diagram to illustrate design of protective fencing with scaffolding anchored into the ground.

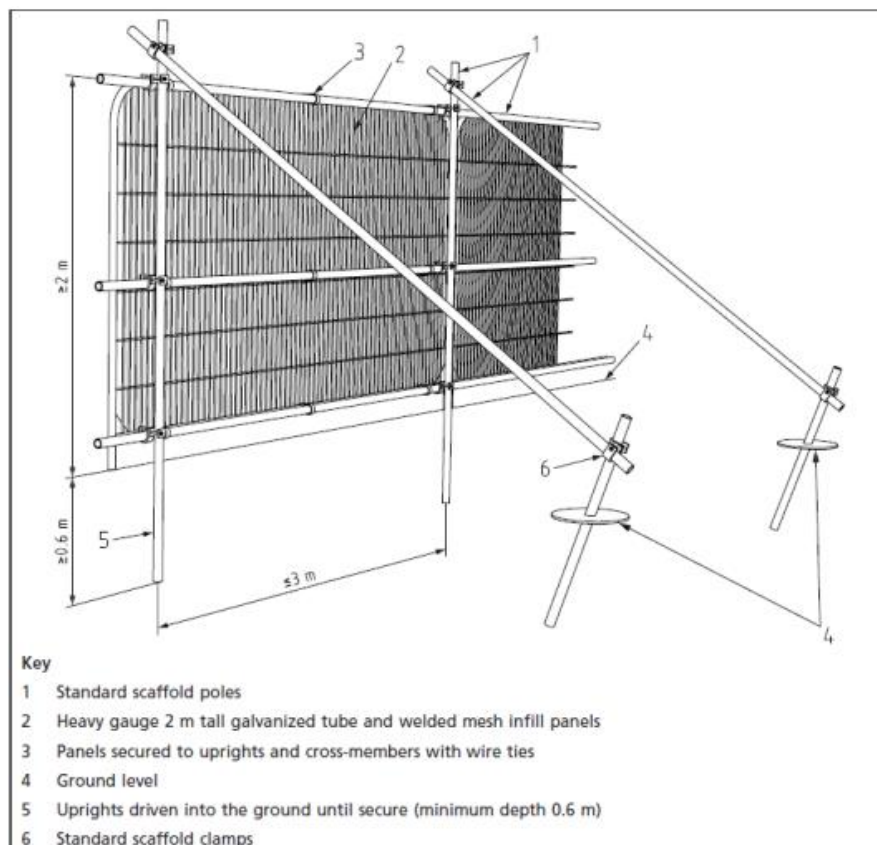


Figure 3. Diagram to illustrate alternative design of protective fencing.

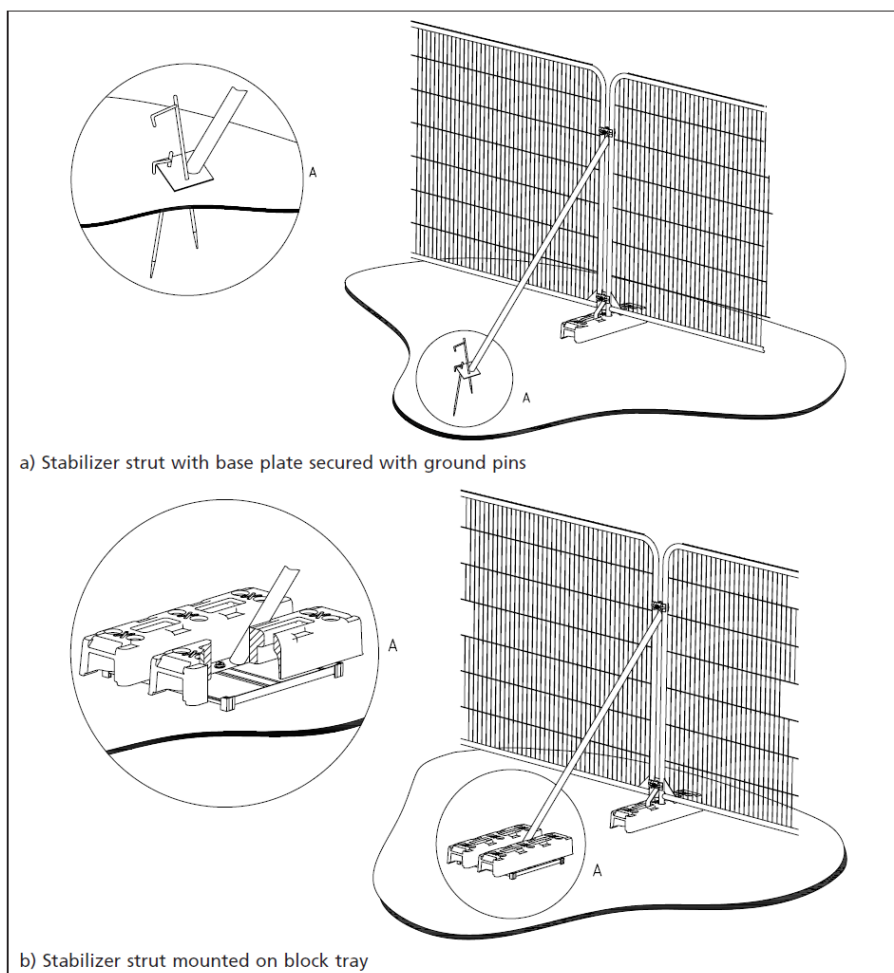


Figure 4. Photograph to illustrate installed protective fencing



- 5.4 High visibility all weather notices at a size no less than A3 will be securely attached to every second panel of the barrier around the CEZ with wording as shown in Figure 5.

Figure 5. Wording to be included in high visibility all-weather sign attached to protective fencing



Arboricultural supervision

- 5.5 A project arboricultural consultant will be appointed to oversee tree protection for the duration of the construction contract. The project arboriculturist will be consulted on any issues that may arise concerning trees and will visit the site as often as necessary to ensure that trees are protected and/or at the following key stages:
- Following installation of tree protection but prior to any works commencing on site to confirm that it is fit for purpose, and to meet with the site manager to ensure that the principles of tree protection are understood and agreed;
 - At any time that there are potential conflicts with tree protection.
- 5.6 A pre-start meeting will be held on site during which the site manager will be fully briefed on tree protection measures and procedures before any demolition/construction workers or sub-contractors are permitted onto the site. Following induction, a copy of the Induction Sheet (**MD5**) will be provided to and be signed by the site manager/foreman in recognition of acceptance of their role in enforcing day to day tree protection.
- 5.7 All contractors involved in the project have a duty to comply with all the specified tree protection measures and all workers will be provided with induction by the site manager/foreman and be required to sign an Induction Sheet confirming they have understood the protection measures. Signed sheets will be kept on site for inspection.
- 5.8 No enabling works will take place until after tree protection has been installed, inspected and approved as fit for purpose, and the meeting has been held.
- 5.9 Fencing will not be removed under any circumstances during construction unless with the express approval of the local authority. If in any doubt the site manager will contact the project arboricultural consultant.

Burning of waste

- 5.10 No fires will be lit on site within 3 m of root protection areas due to the danger of scorching of leaves and branches of overhanging trees.

Space for machinery, parking of vehicles, storage of materials and site huts

- 5.11 All machinery required on site will operate outside of root protection areas or from the ground protection or the driveway. Site accommodation, if required, will be located outside root protection areas.
- 5.12 Delivery vehicles will park in the drive or off site and storage of materials will be outside root protection areas. At each delivery, where materials are unloaded by crane, a banksman will be present to ensure that sufficient clearance is allowed for to avoid conflict with branches of T1. Any incidents will be reported to the project arboriculturist.

Services

- 5.13 Existing services will be used. A new connection is proposed along the left hand side of the new building, but it is outside any RPA. If, for an unforeseen reason, new connections are needed, and it is necessary for a trench to be dug through an RPA, a specific method statement will be required which will need to specify that the trench will be hand dug under arboricultural supervision, and that care will be taken to preserve all roots encountered which are larger than

25mm diameter.

Landscaping

- 5.14 Once construction has demonstrably finished (to the satisfaction of the project arboriculturist) fencing may be removed in order to allow final landscaping to be undertaken. Landscaping plans will not involve any changes in soil levels, digging of any trenches or construction of masonry or retaining walls within root protection areas.

7. Conclusions

- 6.1 A BS5837: 2012 survey of five trees has been carried out on land at 201 Reading Road, Wokingham, Berks, RG41 1LJ. One tree is considered to be category A and of high value (T1 oak) and the remainder are category C and are of low value (T2 Laburnum, T3 Leyland cypress, T4 poplar and T5 laurel).
- 6.2 All of the surveyed tree will be retained and will be protected during development and methods for ensuring their protection have been described.
- 6.3 It is considered that the proposed development will pose no threat to trees to be retained and is sympathetic to the leafy character of the area.

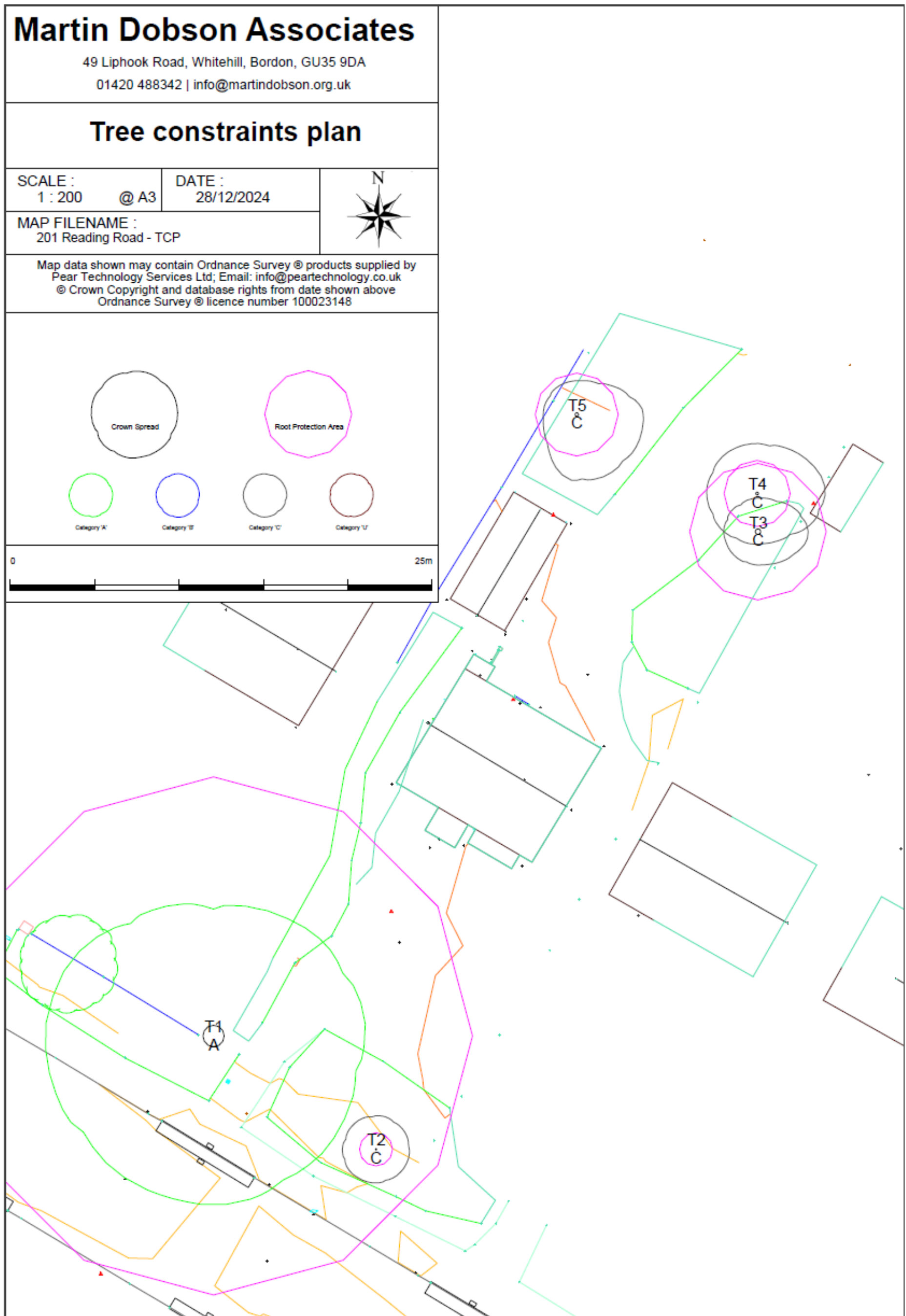
APPENDIX MD1

Tree survey schedule (BS5837: 2012)

Tree No.	Species	Height (m)	Trunk diameter (mm)	Crown spread				Height of crown clearance (m)	Age class	Physiological condition	Structural condition	Useful life	BS5837 Category	Comments
				N (m)	E (m)	S (m)	W (m)							
T1	Oak	22	1270	8	9	10	10	N4	M	Good	Good	10 to 20 yrs	A	Protected by a TPO and considered to be a 'veteran' tree.
T2	Laburnum	5	80	2	2	2	2	S2	Y	Good	Fair	10 to 20 yrs	C	
T3	Leyland Cypress	15	330	2	3	2	2	N3	MA	Good	Poor	10 to 20 yrs	C	Multi stemmed, weak structure.
T4	Poplar	12	160	3	4	3	3	S4	Y	Good	Good	10 to 20 yrs	C	
T5	Laurel	3	200	2	4	4	2	S1	M	Fair	Poor	20 to 40 yrs	C	Part of overgrown hedge.

APPENDIX MD2

Tree constraints plan (TCP) showing existing plot layout with tree numbers, BS5837: 2012 colour codes (A – Green, B – Blue, C – Grey, U – Red) and root protection areas (magenta circles). The plan has been provided separately as a PDF at a scale of 1: 200 @ A3.



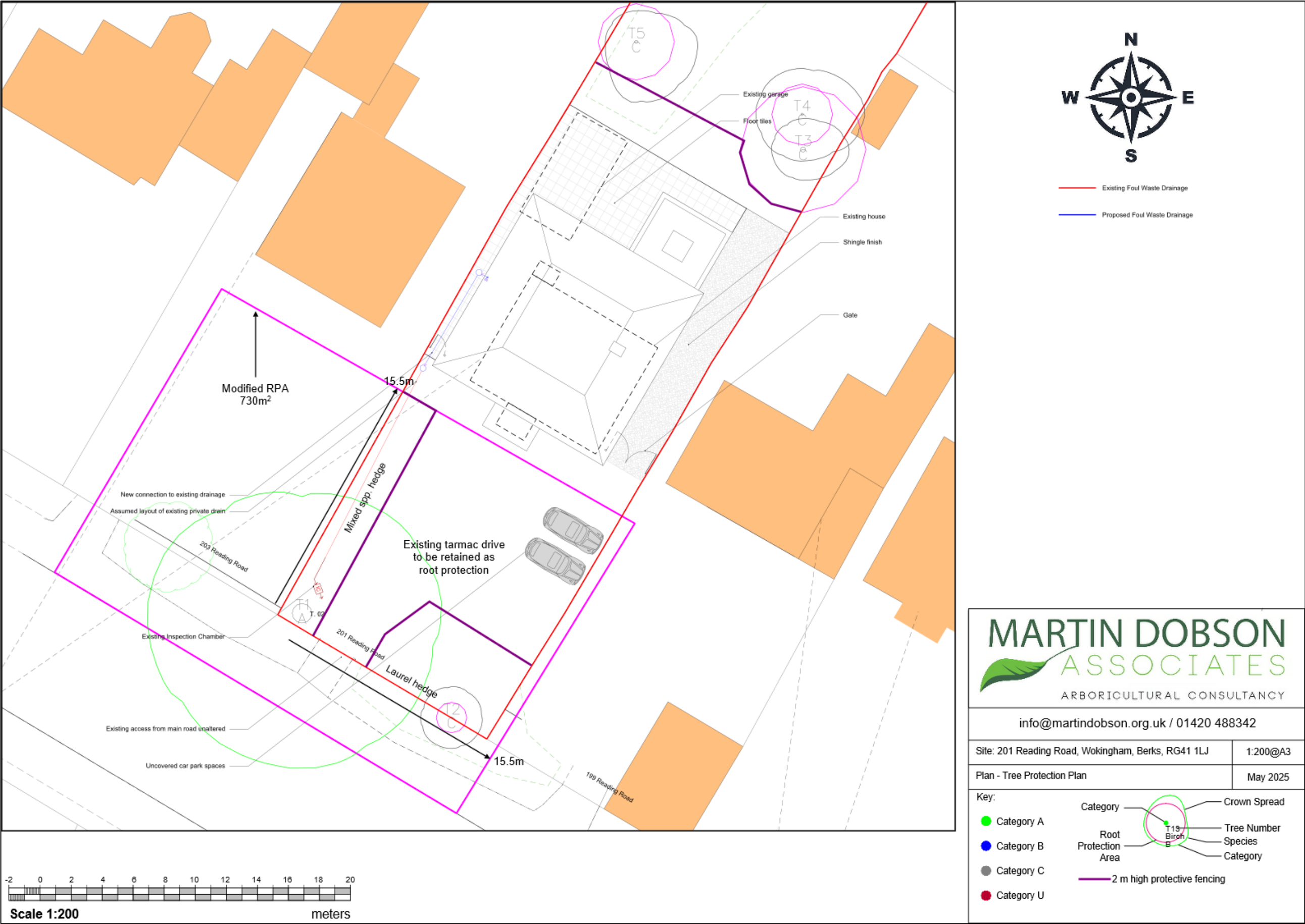
APPENDIX MD3

BS5837: 2012 schedule of root protection areas

Tree No.	Species	Trunk diameter (mm)	BS5837: 2012 Root protection area, RPA, (m ²)	BS5837: 2012 Radial protection distance (m)
T1	Oak	1270	729.8	15.0
T2	Laburnum	80	2.9	1.0
T3	Leyland Cypress	330	49.3	4.0
T4	Poplar	160	11.6	1.9
T5	Laurel	200	18.1	2.4

APPENDIX MD4

Tree protection plan (TPP) showing retained trees, tree numbers and root protection areas (magenta circles). The location of protective fencing is shown as purple lines. The plan has been provided separately as a PDF at a scale of 1: 200 @ A3.



APPENDIX MD5

TREE AWARENESS – SITE INDUCTION SHEET

SITE NAME: 201 Reading Road, Wokingham, Berks, RG41 1LJ

Trees are an important part of this development and all trees noted on the Tree Protection Plan are protected by planning conditions and by virtue of being in a Conservation Area. Trees must not be damaged in any way, including indirectly through compaction/contamination of soil, so that they can fully integrate into the finished project and stay healthy well into the future. All persons working on this site have a responsibility to be aware of trees and to abide by tree protection procedures.

How can trees can be damaged?

Above the ground – contacts and impacts with branches and trunk (for example by machine operations: piling rigs, high-sided vehicles, crane use, fixings to trunk, unauthorised cutting back of branches). Make sure there is adequate clearance under the tree canopy and don't stray close to the trunk. Damage to bark allows infections to enter the tree.

Below the ground – roots spread out from the trunk horizontally at shallow depth and are therefore easily damaged. Vehicle and pedestrian movements and storage of materials on unprotected ground causes compaction, especially in wet weather, and must be avoided. Soil stripping during site clearance or landscaping is prohibited in root protection areas. The effects of root damage may take some time to become obvious, but can result in disfiguring dieback of leaves and branches, or even death.

Tree protection procedures

Provided that the simple steps below are followed most tree protection is straightforward:

- Stay out of tree Construction Exclusion Zones (CEZs). These are the areas of ground surrounding retained trees that are protected by barriers and/or ground protection. If you need to go into a CEZ, you must first gain authorisation from the Site Manager.
- No construction activity of any description within CEZs, e.g. soil stripping, cement mixing, services installation, storage of materials etc.
- No fires within 20m of trunk of any retained tree.
- If authorised to work within a CEZ, for example, for installation of an above-ground no-dig driveway you must follow the procedures set out in the **Arboricultural Method Statement**.
- If damage occurs, you must inform the Site Manager who must, in turn, inform the project arboriculturist.

Planning Authority enforcement action needs to be avoided:

- 'Breach of Conditions' notices can prevent a site from being signed-off.
- 'Temporary Stop Notices' halt site operations and result in associated high costs.
- Wilful damage/destruction of TPO/Conservation Area trees can result in company and/or individual prosecutions - fines can be anything up to £20,000 (County Court fines are unlimited). Remember that fines may apply to the person committing the offence as well as the site owner and main contractors!

I have received site induction in tree awareness and tree protection procedures

PRINT NAME

SIGN

DATE

APPENDIX MD6

Qualifications and Experience

Dr Martin Dobson has been engaged in research and advisory work on trees since graduating in 1986 with a BSc (Hons) Degree in Biology. Subsequent postgraduate research led to the award of a Doctor of Philosophy (DPhil) Degree in Tree Physiology in 1990.

Postgraduate studies began in 1986 at the University of Ulster and continued in 1987 at the Forestry Commission's Research Station in Hampshire and focussed on the influence of air pollution on trees. Upon completion of this research in 1989 Dr Dobson was employed by the Forestry Commission and worked in both the Tree Pathology and Environmental Research Branches carrying out research on air pollution, climate change, de-icing salt damage to trees, woodland establishment on landfills and tree root development. He has authored two books: *De-icing Salt Damage to Trees and Shrubs* and *The Potential for Woodland Establishment on Landfill Sites*. He concluded his time at the Forestry Commission with research into the interaction between trees, roots and clay soils which included laboratory investigations, testing of root barriers and a three-year field-scale monitoring programme investigating the influence of woodland and grassland on the moisture status of clay soils.

In 1995 Martin joined the Arboricultural Advisory and Information Service as a senior Arboricultural Advisor. The AAIS advised the (then) Department of the Environment on matters concerning amenity trees and was the principal source of technical advice and information to the arboricultural profession as well as landscape architects, engineers, the horticultural industry and private individuals. A large proportion of advisory work focussed on issues relating to tree diseases and interactions between trees and buildings.

In 1997 Martin started an arboricultural consultancy practice specialising in subsidence and tree root claims, planning and development, tree safety and disease diagnosis. He was a local authority retained consultant providing expertise on tree protection practice and legislation from 1999 - 2006 and has dealt with several thousand Tree Preservation Order and Conservation Area applications.

He has extensive experience as an Expert Witness in the High Court, County Court and Magistrates Court. Notable cases he has been involved in include *Raphael v London Borough of Brent*, *Khan v London Borough of Harrow and Kane* and *Hoyle v Hampshire County Council* and others.

From 1995 to 2011 he was an examiner for the Professional Diploma in Arboriculture for the Royal Forestry Society/ABC Awards and he is currently the Lead Assessor and chairman of the Quality Assurance panel for the Arboricultural Association's Registered Consultant scheme. He has been a guest lecturer for the Middlesex University Countryside Management MSc course and for Portsmouth University. He teaches introductory and advanced courses on trees and subsidence for the Arboricultural Association and a course on professional report writing skills.

In addition to over 30 publications in scientific and technical journals he is the author of Arboriculture Research and Information Note 130/95/ARB *Tree Root Systems*, and leading author of:

Driveways Close to Trees. Arboricultural Practice Note 1. AAIS, Farnham.

Trees in Dispute. Arboricultural Practice Note 3. AAIS, Farnham.

Root Barriers and Building Subsidence. Arboricultural Practice Note 4. AAIS, Farnham.

He is a Fellow and Registered Consultant of the Arboricultural Association and is a Member by examination of the Expert Witness Institute.