

Pre-development Tree Survey BS5837:2012

Grove Road, Burbage



December 2024

For: Premibuild Midlands Ltd

Report Author:

Dr. Stefan Bodnar BSc (Hons) PhD MIEEM

Wallbrook Farm

Allensmore

HR2 9BE

Tel: 07429 209549

Email: stefan.bodnar01@gmail.com

Contents

1. Introduction and site description	3
2. Arboricultural Survey Method	7
2.1 Condition Status	7
2.2 Root Protection Area	8
3. Results	10
4. Discussion	13
4.1 Tree protection	13
4.2 Tree protection & ground protection	15
4.3 Landscape considerations	20
4.4 Mitigation and compensation	21

Appendix 1: Site and tree images

Appendix 2: Tree location map

1.0. Introduction and Site Description

The client, commissioned Dr. Stefan Bodnar to undertake an arboricultural survey (BS5837:2012) on trees within a proposed development at land to the rear of Grove house, Grove Road, Burbage LE10 2AE

The trees included within the survey and their relationship to the Development Footprint are identified on the drawing in Appendix 2, the aerial photograph relating to the site and photographs of trees involved are included in Appendix 1, together with examples of the trees concerned.

BS 5837:2012 includes an assessment of all trees within the development footprint in addition to those near to the site boundary. The site assessed is indicated in the location plan of trees (Appendix 2). See site plan below in Figure 1.

The site consists of a house and rear garden that has a number of small landscape plantings, on the edges of the site including young trees and hedges, both on and off site. A number of trees along the Grove Road frontage are mature specimens which are protected via a Tree Protection Order (TPO). See satellite image (figure 1) and appendixes for site images.

The site contains trees protected by a Tree Preservation Order (Ref 98/00107/TPO). It is recommended that the client fully satisfy themselves that this is the case during contact with the Local Planning Authority.

As part of Conditions for the approved development (24/00601/FUL) the LPA requires the following information which this report aims to discharge:

12. Prior to the commencement of any development in accordance with this permission, an updated Tree Survey (reflecting the current trees on site) and a Tree Protection Plan prepared by a suitably qualified arboriculturist shall be submitted to and approved in writing by the local planning authority. The Tree Survey and Tree Protection Plan shall be submitted to the Local Planning Authority within 28 days of this decision. The development shall then be carried out in strict accordance with the approved details.

Reason: To ensure the existing trees to be retained and their root systems are adequately protected during construction in the interests of conserving the visual amenity of the area and biodiversity of the site to accord with Policies DM6 and DM10 of the adopted Site Allocations and Development Management Policies Development Plan Document (2016) and paragraph 136 of the National Planning Policy Framework (2023).

Figure 1. Satellite image of site



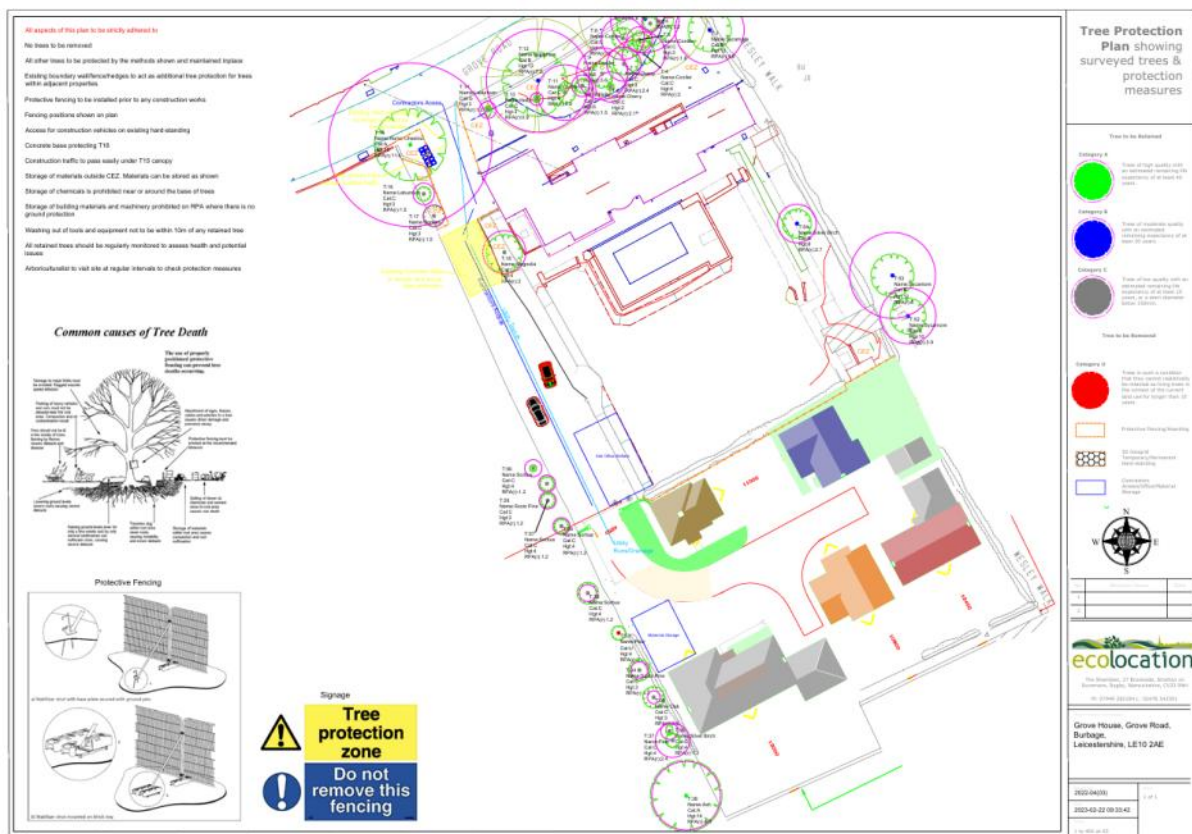
Map data 2024 © Google.

Existing plans:

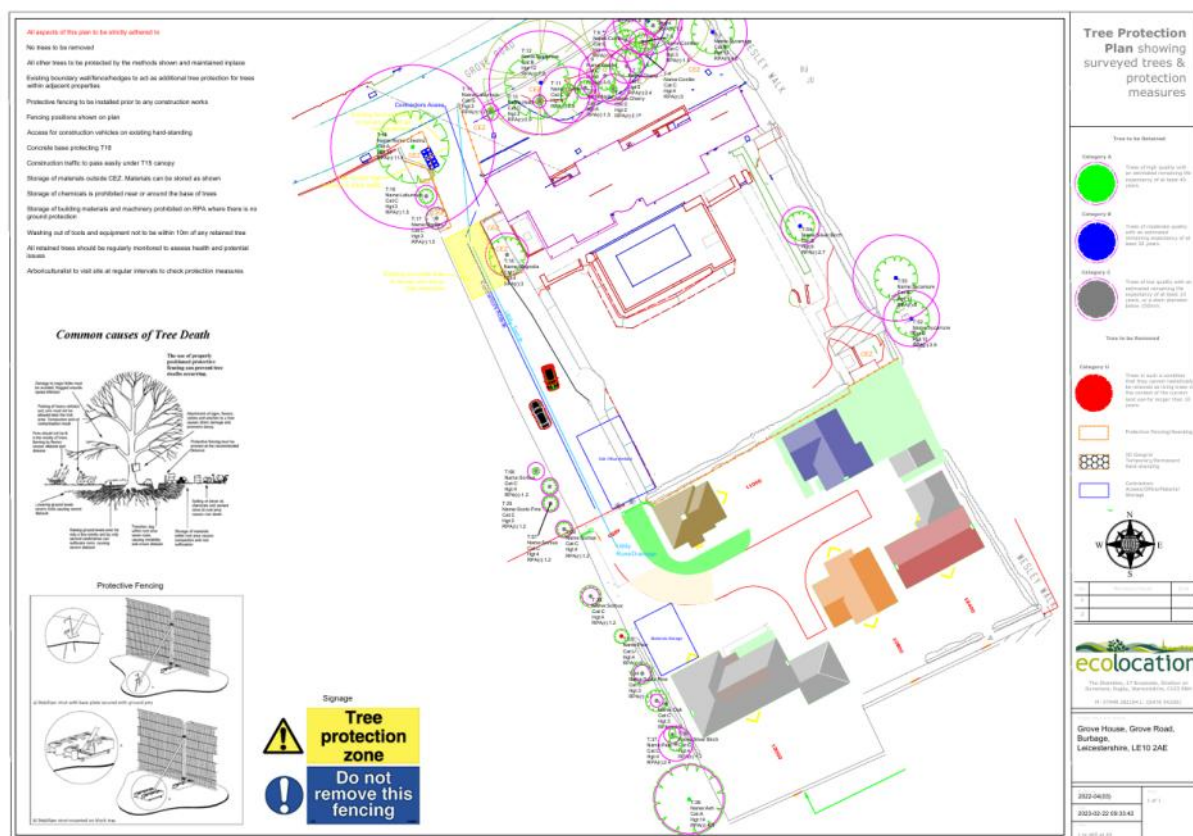
P01



Previous tree protection plan:



Proposed plans:



2.0. Arboricultural Survey Methodology

2.1 Condition Status

To determine the status of the trees within the site a full arboricultural survey has been undertaken, assessing species and status of all trees present within the footprint of development. The survey has been carried out in accordance with BS 5837 (2012).

The surveyor has extensive experience of arboriculture, through undertaking BS5837 surveys on many sites between 2005 and 2024. Previous to this, he has undertaken Lantra approved courses for arborists, and is competent to the level of a tree officer operating within a Local Authority, being familiar and having used the systems undertaken by tree officers for undertaking safety and condition surveys for Birmingham City Council. Dr. Bodnar possesses numerous ecological qualifications including a full member of CIEEM and a PhD (Community Forestry, 1998). Recent Certificated BS5837 training (May 2015) from Tree Life Arboricultural Consultancy Ltd.

Individual trees above 75mm (diameter at 1.5m above ground level) have had their position confirmed on the survey drawing. The trees were visually assessed and a schedule prepared listing tree number, species, trunk diameter at 1.m above ground level, tree height, crown spread (radius), age, class and estimated remaining years. Any specific observation or recommendations with regard to management were also noted.

A plan drawing indicating the location of each tree assessed is included in Appendix 2.

The condition of each tree was assessed according to the following categories:

Category A

Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the long term (i.e., >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan: pale green.

Category B

Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40 years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan: mid blue.

Category C

Those trees of low quality and value. Trees that can only be retained in the short term (.e, 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan: grey.

Category U

Unsuitable for retention. Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code on the plan: red.

Categories A, B and C have further sub-categories with regard to the reasons for tree retention:

- 1: Mainly arboricultural values
- 2: Mainly landscape values
- 3: Mainly cultural values, including conservation.

2.2 Root Protection Area (RPA)

In order to avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the category A, B and C trees. This is a minimum area of m^2 , which should be left undisturbed around each retained tree. These figures are calculated utilising the formula from BS 5837 (2012).

During construction works the root protection areas – ‘Construction Exclusion Zones’ are to be protected by barriers and ground protection in accordance with Section 9.0 of BS 5837:2012 and as specified and indicated on an approved Tree Protection Plan.

Where construction operations (demolition / hard surfacing) are proposed/ permitted within the Root Protection Area precautions should be taken to maintain the condition and health of the root system in accordance with BS5837:2012.

Construction of hard surfacing within the root protection area should be designed to avoid root loss during excavation. The structure of the hard surface should be designed to avoid localised compaction, including the use of three dimensional cellular confinement system as an integral component of the sub-base.

The hard surfacing in these areas should be a permeable and gas-porous nature such as washed gravel or paving slabs and block pavers (with infiltration spaces). Edge supports such as kerb and edgings on foundations and haunchings are not to be used within the RPA. Consideration should be given to the use of pegged timber edging or propriety or steelpaver or edge restraints.

3.0 Results

The tree stock on site consists of a range of mature specimens along Grove Road protected via a Tree Protection Order, mainly outside the Zone of Influence and a number of small young trees and hedges along the site edges and access road. The trees are mainly B and C category trees, with one tree by the entrance from Grove Road categorized as A.

In general, A and B category trees or hedges should be retained and carefully protected during any development work with appropriate root protection fencing. As many C category trees and hedges as possible should be protected and retained, although suitable replacement planting within the scheme area could adequately mitigate for losses of category C trees.

A map detailing the location of trees and their BS5837:2012 determined category can be seen in Appendix 2, all other trees on site are noted as being below 150mm stem diameter and therefore, outside the requirements of BS5837:2012. Trees below 150mm stem diameter but above 75 mm stem diameter are included in the topographical survey of the site. Appendix 1 contains images of all the trees and all significant specimens.

Scientific names for species identified:

Common Name	Species Name
Scots pine	<i>Pinus sylvestris</i>
Yew	<i>Taxus baccatta</i>
Whitebeam	<i>Sorbus aria</i>
Cypress	<i>Cupressus sp.</i>
Hawthorn	<i>Crataegus monogyna</i>
Leyland cypress	<i>Cupressus × leylandii</i>
Holly	<i>Ilex aquilifolium</i>
Horsechestnut	<i>Aesculus hippocastaneum</i>
Oak	<i>Quercus sp.</i>
Silver birch	<i>Betula pendula</i>

Survey as of December 2024

G = Group H = Hedge T = Tree

Tree no.	Species	Stem diam (mm) DBH	Crown S (m)	Crown W (m)	Crown E (m)	Crown N (m)	Height (m)	Age Class	Estimated remaining contribution (years)	Physiological and Structural Condition	Category	Radius of nominal circle	Root Protection area (m ²)
1	Horsechestnut	1000	8	8	8	8	14	M	40+	Lowest limb 5.4m E. Ground works planned 6m from tree centre (drainage and services in access road)	A2	12	452
2	Magnolia	225	.5	.5	.5	.5	2.5	Shrub	10-15	Reduced	C1	2.7	23
3	Holly	150	2	2	2	2	7	Y	10-15		C1	1.8	10
4	Scots pine	150	2	2	2	2	5	Y	10-15		C1	1.8	10
5	Whitebeam	150	2	2	2	2	6	Y	10-15		C1	1.8	10
6	Whitebeam	150	2	2	2	2	6	Y	10-15		C1	1.8	10

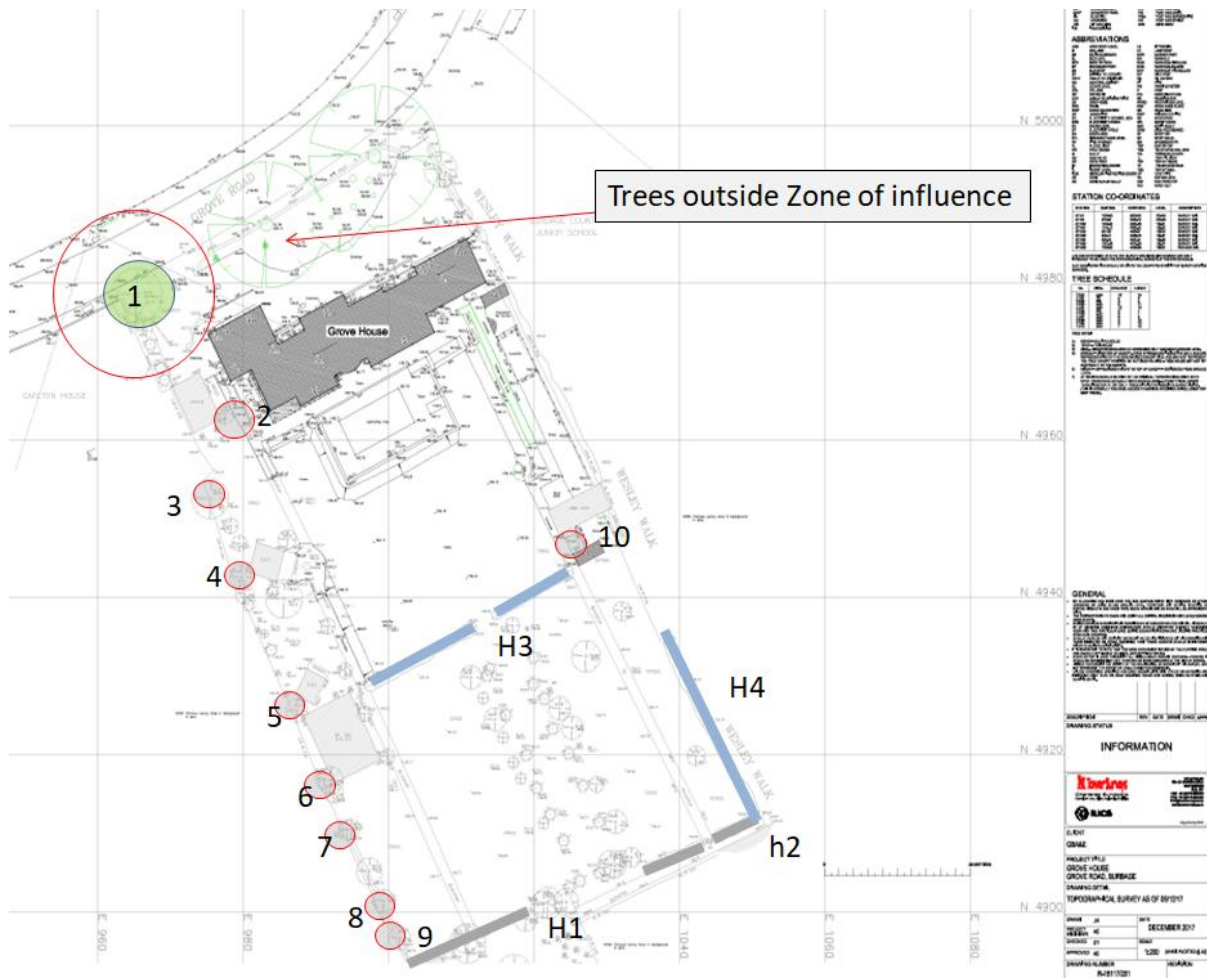
7	Scots pine	150	2	2	2	2	6	Y	10-15		C1	1.8	10
8	English oak	150	2	2	2	2	6	Y	10-15		C1	1.8	10
9	Silver birch	150	2	2	2	2	6	Y	10-15		C1	1.8	10
10	Cypress	150	2	2	2	2	6	Y	10-15		C1	1.8	10
H1	Cypress 11 trees)	175	1	1	1	1	7	Hedge	10-15		C1	2.1	14
H2	Leyland cypress	150	1	1	1	1	2	Hedge	10-15		C1	1.8	10
H3	Holly/hawthorn hedge	150	1	1	1	1	2	Hedge	20+		B3	1.8	10
H4	Yew	150	1	1	1	1	2	Hedge	20+		B2	1.8	10

4.0 Discussion

4.1 Tree Protection: Tree Removal and Retention Plans:

Tree Constraints plan

The main tree constraints are the significant trees on site comprising, the single horsechestnut protected under the TPO see below:



Impacts on trees of development:

No other trees are to be removed from site, though the client wishes to remove H1 and replace with another hedge type. All trees are outside the Zone of influence of operations with the exception of trees 1 where the drainage and surface connections for the development will be within the nominal RPZ of the tree. Works will need to be undertaken with due care and within the agreed method statement contained within this report (section 4.2).

The arboricultural impacts are minimal and providing there is adequate tree protection employed, do not require specialised measures. There should be no new areas of hardstanding created within the Root zones of trees 1 and 6 as part of the works.

It is a requirement that tree protection fencing be erected around the root zones of the retained trees and hedges in the development zone to prevent any root compaction via storage of materials or access onto the site.

4.1.2 Avoiding Accidental Damage to Trees: Trees may be negatively affected by the construction period by both direct and indirect actions, which are often borne out of ignorance as to the tree physiological requirements. Careful site planning and management along with the implementation of robust physical protection measures is necessary to ensure the retention of important trees.

4.1.3 Soil and Root Protection: It is essential to safeguard a pre-determined volume of soil around the base of the retained trees to ensure that their ongoing biological functioning of the root system along with the interaction with the soil is not impaired. This requires, that prior to the commencement of development activity on site that a robust protective barrier is erected.

4.1.4 Suitable Barriers: The specifications for this barrier should be as per the British Standard 5837 of 2012 (Trees in Relation to Construction – recommendations). In brief, this consists of 2.3m high panels attached to an adequately braced scaffold structure to deter un-authorized dismantling and robust enough to rebut physical impacts from site plant and machinery. In practice Heras weld-mesh type panels perform well when attached to the above mentioned scaffold structure.

4.1.5 Bird breeding season: All site clearance should ideally take place outside of the bird breeding season. Bird breeding season is between mid March and mid July, although certain species can breed outside these months and if breeding birds are found then work should cease and the advice of an ecologist sought. If clearance is undertaken within the bird breeding season then all site features should preferably be checked immediately prior to clearance by a suitably qualified ecologist.

4.1.6 Shading: The existing trees are small around the site edges and there is unlikely to be significant shading issues.

4.2 Tree Protection & Ground Protection

The tree protection plan concerns measures to be taken to protect Tree 1 at the site entrance:

Precautions in areas where there is extension into RPZ (nominal) of trees, in this case tree 1:

Distance to tree centre:

It is understood the excavation to 700mm deep will be required to accommodate the drainage and services into the site. This channel is 6-7m from tree centre of tree 1. Some existing drains to 2m exist in this area and it may be the case that there is little or no root significant root extension from tree 1 in this area. Hand digging and less evasive machinery be used near to tree root protection areas

Minimising impacts:

The following methods general principles were agreed to minimise impacts:

1. Carefully expose roots by removing soil for the area concerned.
2. Up to 25mm roots can be severed.
3. Roots above 25mm diameter will be re-aligned. This will require some minimal soil removal to accommodate these outside the area to be removed.
4. There is to be no major root pruning within 3m of the main stem.

Any required works to trees will be completed by a qualified arboriculturist (Root pruning) prior to works, though this will only be possible to determine at excavation. The Arboriculturist will be present on site when implementing drainage or working near the protected trees throughout the construction period.

BS3998:2010

This will be carried out in accordance with BS3998:2010. BS3998:2010 is a document, revised in 2010, which lays out the way in which all tree work should be carried out. The tree surgeons employed to undertake the arboricultural work will be trained and aware of these procedures.

Root pruning

Root pruning shall be done with a sharp tool, in such a way that does not pull on the roots, but leaves smooth cuts. It is preferable to expose the roots prior to root pruning. After pruning, fill the area with quality topsoil and water until thoroughly soaked. Once exposed, roots must be covered within 8 hours. If roots will be left exposed for longer than 8 hours, they must be kept moist. The project arborist must be onsite during the entirety of root pruning.

Details:

- 1) Root pruning is when tree roots are cleanly severed from the tree in order to prevent damage which would be caused by excavation
- 2) The soil around the roots is removed by hand or utilizing an air knife so the roots can be seen before pruning. This is called making a “root pruning trench”
- 3) Once exposed, the roots are cleanly cut, then top soil is put into the root pruning trench to encourage root regrowth in that area
- 4) The most important stability roots are found at 3x the diameter of the tree. This is called a tree’s “structural root plate”
- 5) The location of the root pruning trench will be marked on the ground
- 6) The pruning trench should be cleared in a way that exposes the roots while leaving them intact. i) Use hand tools or an air spade ii)
- 7) If a root larger than 25mm is exposed, leave this root intact.
- 8) Once the roots are exposed, use a SHARP tool (Root Pruning Saw) to cleanly cut all roots which are up to 25mm diameter to the depth of the proposed disturbance
- 9) Post Pruning: Tree roots must be kept moist. If roots ends will be left exposed for more than 8 hours, cover the hole with moist burlap. Fill the hole with high quality top soil, mulch the area with triple shredded hardwood to a depth of 3”, and water well.

4.2.1 All trees that are being retained on site are to be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any

demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers are to be erected to create a construction exclusion zone. The default barrier specification is to be in accordance with BS 5837:2012 ‘Trees in Relation to Design, Demolition and Construction - Recommendations’ as illustrated in Figure 3 below.

4.2.2 The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the Local Planning Authority.

4.2.3 All weather tree protection posters (an example is detailed in Figure 4 below) are to be securely fixed to the tree protection fencing in plain view.

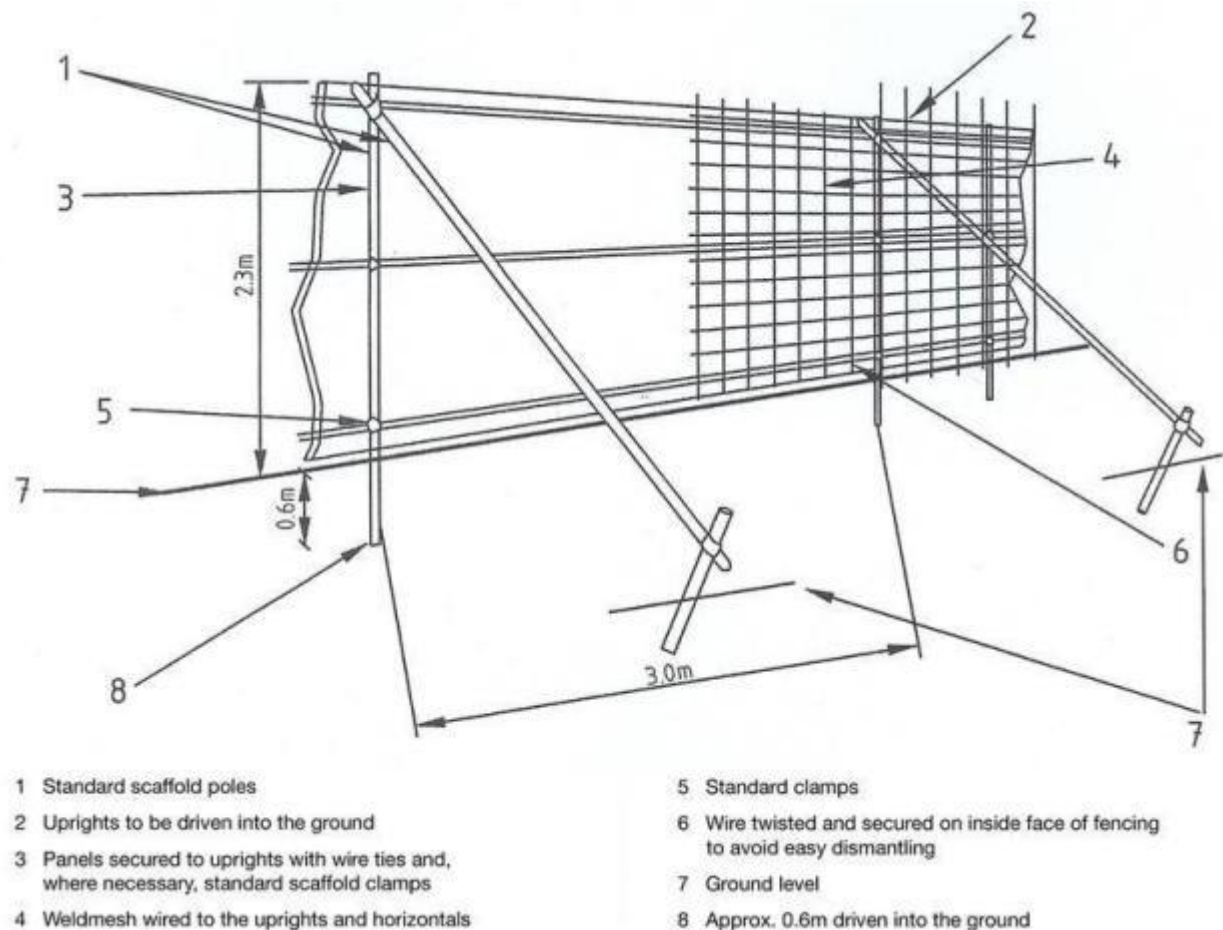


Figure 3. Example of protective fencing required for all Root Protection Areas.



Figure 4. Example of an all weather tree protection poster.

4.2.4 Care is to be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification that provides an equal level of protection is to be prepared in conjunction with the project arboriculturist as illustrated within Figure 3 above.

4.2.5 Where the set-back of the tree protection barrier exposes unmade ground to construction damage, temporary ground protection is to be installed as part of the implementation of physical tree protection measures prior to work starting on site.

4.2.6 Temporary ground protection is to be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil. Detail is shown in Figure 5 below: Scaffolding and root protection within the RPA.

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane.

- b) for pedestrian-operated plant up to a gross weight of 2t, proprietary, inter-linked ground protection boards placed on top of a compression resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.
- c) for wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

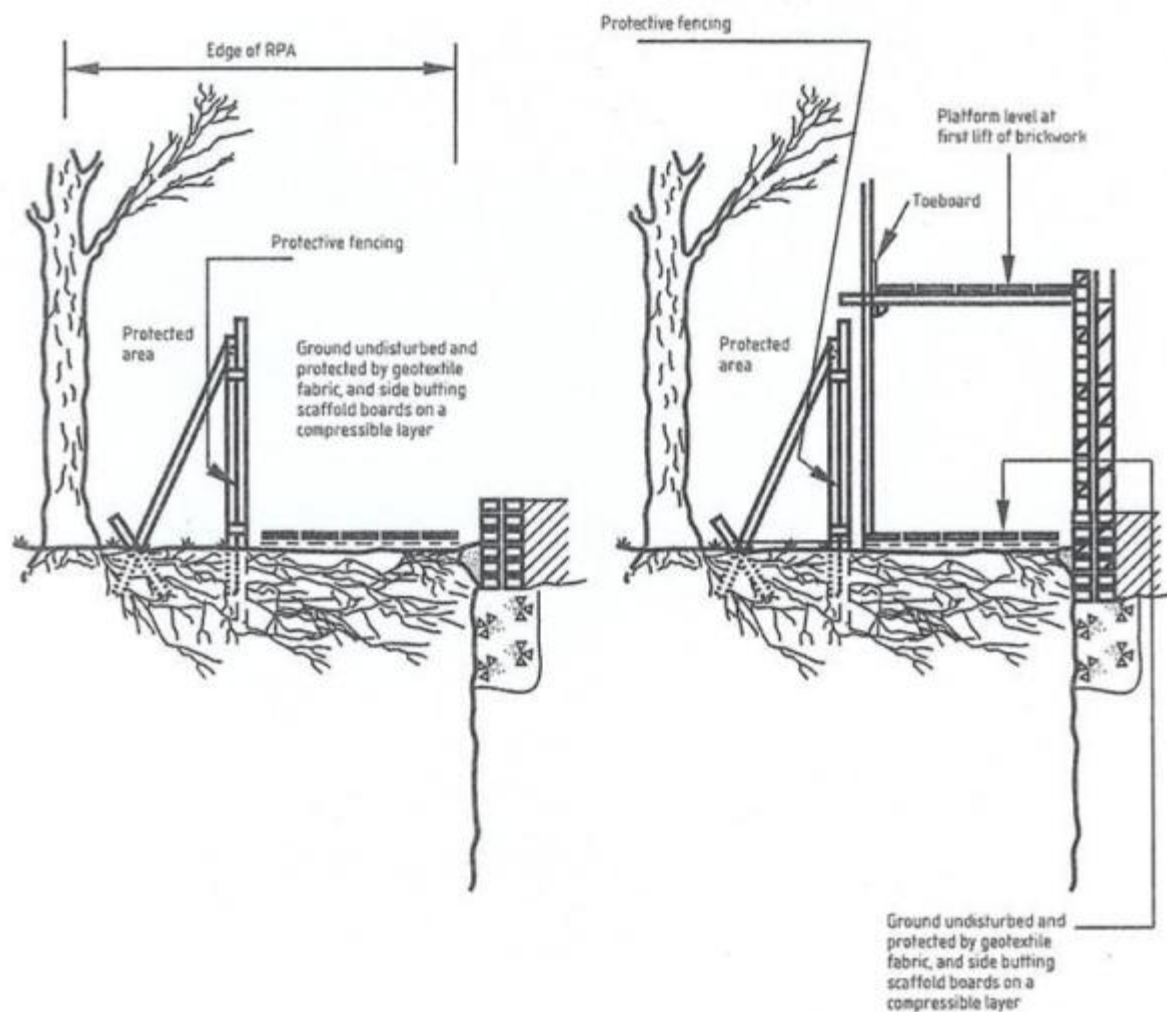


Figure 5. Scaffolding and root protection within the Root Protection Area.

4.3 Landscape considerations:

Consideration should be given to maintaining tree-lined boundary features, the appearance of frontages, screening and landscape impacts.

Further consideration should be given to habitat connectivity and reinforcing site boundaries. The appropriate landscape mitigation and compensation will need to be discussed at the pre-application stage with the appropriate Local Authority Planning Landscape Officer. It is recommended that compensation planting is undertaken and located to enable the landscape value of this area to be reinforced, if any trees with landscape value are to be removed from the site.

4.4 Mitigation and Compensation:

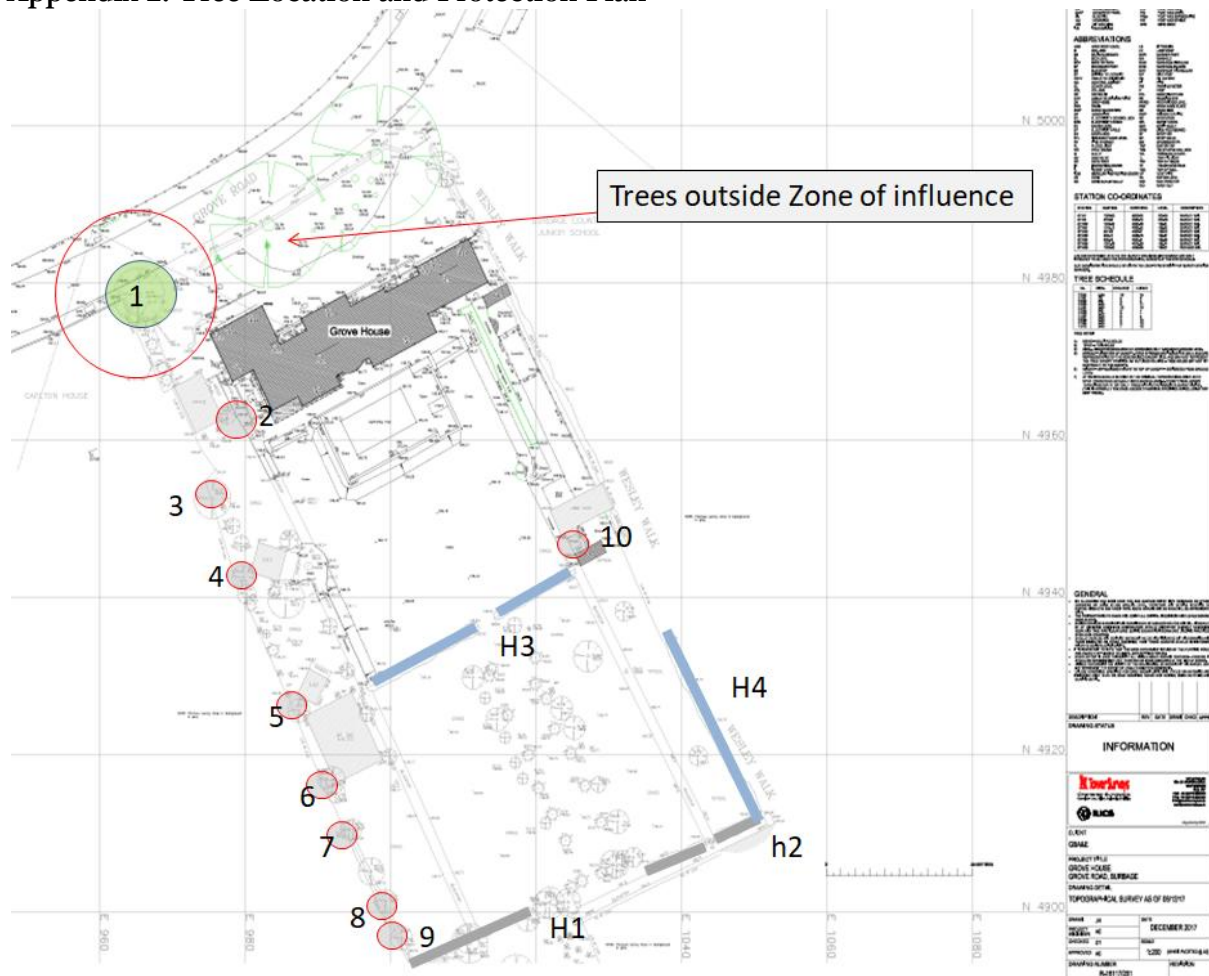
There is likely to be a requirement in terms of compensation for the loss of the existing trees indicated and this can be achieved using tree species such as Rowan and cherry laurel planted as light to moderate standards. At least 6 are recommended located along the entrance driveway. Appropriate hedgerow replacement planting for loss of H1 is also recommended.

REPORT ENDS

Appendix 1: Images of trees and shrub vegetation



Appendix 2: Tree Location and Protection Plan



Category A: Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the long term (i.e. >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan- pale green.

Category B: Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40 years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan- mid blue.

Category C: Those trees of low quality and value. Trees that can only be retained in the short term (e, 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan- grey.

Category U: Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code on the plan- red.