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Arboricultural Constraints Survey, Impact Assessment, Protection Plan and Method Statement

Warnham Station,

Warnham

West Sussex

TQ16956340202

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Document Control Sheet

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1 SUMMARY

1.1 Report

This report is concerned with the arboriculture associated with the proposed development at Warnham Station, Warnham centred on grid reference TQ1695634020. It identifies the arboricultural constraints and advises, in general terms, how they might be overcome or mitigated.

A site visit was carried out on 19th March 2025 by Harry Cuthbert BSc MSc (Hons) and Harriet Davis BA (Hons) who are Ecologists at Ecosurv Ltd. The trees were inspected visually from the ground. The weather at the time of the inspection was dry and calm which was suitable for the purposes of the visit. A total of eleven individual trees, seven groups of trees and one hedgerow were identified.

1.2 Development and site description

The site comprises a small holding, featuring areas of modified grassland, bare ground, buildings and individual trees. Lowland mixed deciduous woodland is present to the peripheries of the site. The proposals are for a residential development comprising houses and flats with associated infrastructure and landscaping. The majority of trees present on site will all be removed to facilitate the development, however adjacent trees and woodland and trees to be retained should be considered during construction.

Specifications for tree protection barriers and ground protection are provided, along with general advice on tree retention. Tree protection and methodology shall be deployed where indicated on the Tree Protection Plan.

1.3 Root Protection Areas (RPAs)

The Root Protection Areas (RPA's) of all trees surveyed were calculated and recorded in the Tree Survey Schedule (see results) where they are expressed in linear metres; it would normally be at this distance that tree protective barriers should be erected. In some instances, particularly for groups of trees, an indicative RPA has been given including area extent to account for the presence of hardstanding and buildings near the trees.

1.4 Potential ecological impacts

A Ground Level Tree Assessment (GLTA) of any trees on site was carried out in relation to bats. This involves a detailed inspection of the exterior of the tree from the ground to look for features that bats could use for roosting (PRFs) to determine the suitability of the site for bats and further survey requirement in accordance with the current Bat Conservation Trust (BCT) survey guidelines (Collins, 2023). PRF types that can be exploited by bats include, but not exclusively; woodpecker holes, knot holes, wounds, cankers, forks, lifting bark, cracks, fluting and ivy.

The trees were then categorised based on their suitability and potential for roosting bats, which was evaluated in accordance with the BCT guidelines and criteria outlined in the Bat Mitigation Guidelines.

Trees have an ecological value to any site providing nesting sites for birds, roost sites for bats and habitat for insects which play an important part in local biodiversity. The trees surveyed do provide potential for nesting birds as do the hedgerows and shrubs elsewhere on the site. Any tree works should start outside of the bird breeding season (March – August inclusive). Should this not be the case, a survey of these should be undertaken by a suitably qualified ecologist to identify if nesting

is taking place and an appropriate buffer identified where works should not take place until the young have fledged.

2 INTRODUCTION

Ecosurv Ltd were commissioned by DHA Planning to undertake an Arboricultural Survey of trees at Warnham Station, Warnham. The land is centred on grid reference TQ1695634020 and the survey was conducted in order to assess the site for potential arboricultural constraints.

2.1 Objectives

The survey has been conducted in accordance with BS 5837:2012 – *'Trees in relation to design, demolition and construction – Recommendations'*, to provide a written report of the findings. The report covers all trees within, or adjacent to the site boundaries and assesses their current status.

A topographical survey was made available for the survey. This survey did not have the location of all tree stems plotted; therefore the location of the trees should be treated as indicative where these were not provided. Due to the density of planting, the canopy extent should also be treated as indicative.

The survey only includes trees / groups of trees with a trunk diameter of 100mm or more (measured at a height of 1.5m above ground level), located within the extents of the development and land surrounding the site. All advice is given in connection with this plan. The report provides information for the retention and protection of trees on the development site.

2.2 Location

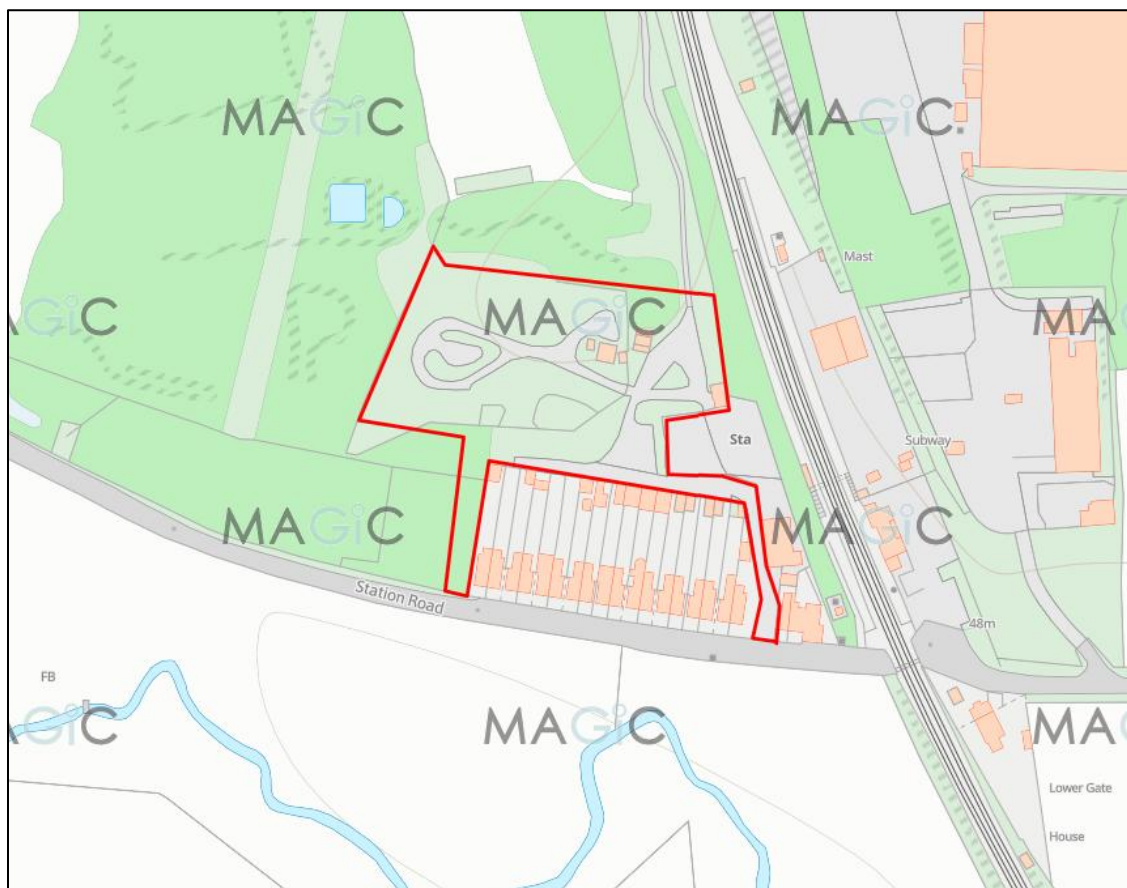


Figure 1: Map showing survey area, the site (in red) and surrounding area.

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3 LEGISLATION

The following is given as standard general advice:

3.1 Conservation Areas and Tree Preservation Orders

Trees and hedgerows can be subject to statutory control and severe penalties can result from unauthorised works or damage. It is recommended that prior to commencement of any tree works the LPA are contacted. When proposing to do works to trees within a Conservation Area, with some exceptions, six weeks written notice must be given to the LPA. This notice is often referred to as a Section 211 Notice. Having received such a notice, the LPA has essentially only one of two options at its disposal, these are:

Impose a TPO in respect of those trees/some of those trees subject to the notice. This prevents any works being carried out without the express, written consent of the LPA.

Or

Do nothing. It is considered best practice for an LPA to acknowledge receipt of the notice but there is no obligation for it to do so. After six weeks of serving the notice the tree owner may proceed with the works detailed in the Section 211 Notice.

The LPA cannot, in response to a Section 211 Notice, issue a conditional consent.

TPO's are made in the interests of preserving amenity, usually taken to mean public visual amenity. Trees largely removed from public view and which have little visual impact are not usually made the subject of a TPO. Subject to certain exemptions e.g. trees which are dead, dying or dangerous, the written consent of the LPA must be obtained prior to undertaking works to trees subject to TPO.

3.2 Trees and Wildlife

Trees provide valuable habitat for nesting birds and roosting bats. It is a criminal offence under normal circumstances to disturb or destroy, either intentionally or unintentionally, the nesting sites of birds and roosting sites of bats. Nesting birds and bats are afforded protection under The Wildlife and Countryside Act 1981(as amended). The Conservation of Species and Habitat Regulations 2010 affords additional protection to all UK bat species. Significant tree works should be avoided during bird nesting season (March – August inclusive) and trees should be professionally surveyed for signs of bat roosting and activity, prior to any tree work commencing.

3.3 Hedgerows

The Hedgerow Regulations 1997 provide protection by prohibiting the removal of countryside hedgerows if they are assessed as 'important' according to a specific set of criteria. In particular, older hedgerows, species-rich hedgerows and those associated with large trees, water or public rights of way are more likely to meet the criteria for Importance. Hedgerows generally fall outside of the scope of BS5837:2012 as such; no comprehensive assessment of the hedgerow stock was made. Further advice should be sought from the project ecologist.

3.4 Non-statutory Considerations

3.4.1 Implementation of Tree Works

Guidance on hiring an Arborist is available from the Arboricultural Association's Register of Contractors is available free from Ampfield House, Romsey, Hants, SO51 9PA (Telephone 01794 368717, www.trees.org.uk). Any appointed contractor should carry out all tree works to BS 3998 (1991) 'Recommendations for Tree Work' as modified by research that is more recent. Ecosurv Ltd can assist with both the appointment of a tree surgeon and provide on-site supervision.

3.4.2 New Planting:

It is likely that any planning permission issued will carry a condition requiring new tree planting, particularly in instances where a proposal involves the removal of trees. The proposed plans involve the planting of three new trees at the south west corner of the site.

4 GENERAL ADVICE FOR TREE PROTECTION

Since development layouts are subject to change, the following is given as general guidance.

4.1 Below Ground Constraints

To successfully complete development, various construction activities are required, and great care and consideration needs to be given as to how such activity can proceed whilst avoiding damage to retained trees.

“Damage can occur as a result of direct impact between construction machinery and parts of a tree. Often greater damage and even destruction occurs quite invisibly due to the deformation of the soils in which the trees root. Soil stripping, trenching and compaction all have serious effects on trees and if such trees are to be successfully retained in the long term it is necessary to protect the soil during construction.”

In order to avoid damage to their roots, trees should be protected using protective barriers as are detailed in British Standard 5837, (2012), ‘Trees in Relation to Construction: Recommendations’ and as illustrated in appendix 1. This should be erected around the RPA prior to the commencement of the demolition/construction activity and must remain in situ and intact until completion. The area within these barriers should be considered sacrosanct, and no work should ordinarily be permitted within them. To ensure any tree protective barriers remain during construction, it is further advised that they carry signage as per appendix 3 and that the Site Agent is briefed accordingly. On sites which are particularly ‘tree sensitive’, the Local Planning Authority (LPA) may apply conditions to a planning permission requiring arboricultural supervision.

4.2 Hard Surfacing

Where hard surfacing exists within the area defined as the RPA, it is acceptable to erect protective barriers at the extent of that hard surface, since the surface itself will afford protection to tree roots. However, care must be taken to avoid collision between overhanging tree branches and passing construction traffic. Where it is proposed to remove/regrade existing hard surfacing, it is advised that an arboricultural method statement should be sought.

4.3 Services

Careful consideration must be given to the siting of underground services e.g. drains, electricity, gas etc. and, ideally, they should not be sited within the RPA. As specified in the National Joint Utilities Group (NJUG) Publication Volume 4, ‘Guidelines for The Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees’ (Issue 2), digging within the RPA should only be carried out with hand tools, preferably by compressed air soil displacement. Great care should be taken to preserve and work around roots greater than 25mm in diameter and clusters of smaller roots to avoid damaging the bark. Where it is necessary to sever roots greater than 25mm in diameter, arboricultural advice should be sought. Where smaller roots must be severed, they should be cut back using secateurs or a sharp pruning saw.

Where possible, services laid through protected areas should be installed at a depth greater than 600mm using a trenchless insertion method, in order to preserve the maximum number of roots and avoid conflict between the tree roots and the service.

5 SURVEY LIMITATIONS

Trees are living organisms whose health and condition can change rapidly and all trees, even healthy ones are at risk from unpredictable climatic and man-made events. The assessment of risk for any tree is based upon factors evident at the time of the inspection and the interpretation of those factors by suitably qualified inspectors. The health, condition and safety of trees should be checked on a basis commensurate with the level of risk.

The findings and recommendations contained within this report are, assuming its recommendations are observed, valid for a period of twelve months from the date of survey. Trees are living organisms subject to change – best practice dictates they are inspected on an annual basis for reasons of safety.

Tree rooting characteristics and soils are both enormously variable as are their interactions. This makes attempts to quantify subsidence risk assessment impossible. No effort has been made to assess subsidence risk potential nor should any be construed.

Whilst every effort has been made to detect defects within the trees inspected, no guarantee can be given as to the absolute safety or otherwise of any individual tree. Extreme climatic conditions can cause damage to even apparently healthy trees. All recommendations are given in the context of the site's current usage; any change will dictate a re-inspection.

This report represents a survey and should not be construed to be a detailed tree inspection report; such is available upon request.

6 TREE SURVEY

6.1 Site Visit

A site visit was carried out on 19th March 2025 by Harry Cuthbert BSc MSc (Hons) and Harriet Davis BA (Hons) who are Ecologists at Ecosurv Ltd. The trees were inspected visually from the ground, no drilling or excavation was carried out. The weather at the time of the inspection was calm and visibility was acceptable for the purposes of the visit.

6.2 Tree Survey Methodology

The survey was undertaken in accordance with the guiding principles of British Standard 5837 (2012) '*Trees in Relation to Construction: Recommendations*' and the trees were assessed objectively and without reference or influence being given to any proposed site layout. Using 'Visual Tree Assessment' techniques the trees were surveyed from the ground; this is the method generally adopted and is appropriate in this instance. All trees surveyed are listed in the Tree Survey Schedule and numbered on the plan provided (see results).

Trees have been identified as such in instances as are defined in BS 5837 (2012) '*Trees in Relation to Construction: Recommendations*' i.e. where, by virtue of the fact that trees are in such close proximity they function as a unit, in visual terms, aerodynamically or culturally they are identified in the Tree Survey Schedule and on the associated plan with the prefix 'G'. In the case of groups, the principal species are recorded, other minor species may be omitted. Trees and shrubs which were considered to be insignificant have been omitted from this survey.

A topographical survey was made available for the survey. This survey did not have the location of all tree stems plotted; therefore the location of the trees should be treated as indicative where these were not provided. Due to the density of planting, the canopy extent should also be treated as indicative.

The following features of each tree, group of trees or woodland have been recorded and are presented within the Tree Survey Schedule:

6.2.1 Species

The species identification is based on visual observations and the common English name (with a key provided to scientific names) of what the tree appeared to be. In the case of groups only the principal species are recorded, other minor species may be omitted.

6.2.2 Height

Height is measured in metres from the stem base. Where the ground has a significant slope, the higher ground is selected. Estimated mature heights are given in brackets where identified. In the case of groups, the maximum is recorded. Tree heights were measured using a clinometer and recorded to the nearest 1m.

6.2.3 Stem Diameter

Measured at 1.5 metres above ground and recorded in millimetres to the nearest 10mm. However, where the trunk of any tree breaks below 1.5 metres it is considered a multi-stemmed tree and, in accordance with British Standard 5837 (2012), '*Trees in relation to Construction: Recommendations*' it is measured immediately above the root flare. In the case of groups of trees,

the maximum diameter was recorded. In some instances, the trunk of the tree could not be accessed, for example where dense vegetation exists, in this instance the trunk diameter was estimated. Stem diameters were measured using a rounded down diameter tape to avoid variations due to stem irregularity and shape.

6.2.4 Crown Spread

Crown spread is measured in metres and taken at the four cardinal points to derive an accurate representation of the crown. Where accessible, crown spreads have been measured from the edge of the crown to the stem using a tape measure; inaccessible crown spreads were estimated. All crown spreads are recorded at the cardinal points north, east, south and west.

6.2.5 Crown Clearance

Height above ground level of tree canopy in metres.

6.2.6 Significant Branch

Height and direction of growth of first significant branch.

6.2.7 Life Stage

Age class of the tree is described as young, semi-mature, early-mature, mature, or over-mature.

6.2.8 Physiological Condition

Physiological condition is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vigour, presence of disease and dieback.

6.2.9 Structural Condition

Structural condition is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.

6.2.10 Estimated Remaining Contribution

Life expectancy is classed as: less than 10 years (<10) (Very Short); 10-20 years (Short); 20-40 years (Medium); or more than 40 years (40+) (Long). This is an indication of the number of years before the removal of the tree is likely to be required.

6.3 Tree Categorisation

Following guidance as set out in BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*', trees are impartially assigned a category which determines their retention value within any future development. These are described below:

6.3.1 Category A

Category A trees are of high quality and value with a significant life expectancy, normally over 40 years, and should be retained within the development. These trees are identifiable on the Tree Location and Constraints Plan as light green. They may be further sub-divided as follows:

A1 - Trees that are particularly good examples; perhaps rare or unusual species, or forming an essential part of arboricultural features;

A2 - Trees, groups or woodlands having a significant landscape impact or with excellent screening properties, or those softening the effect of existing structures; and

A3 - Trees, groups or woodlands are those having a significant conservation or historical value.

6.3.1 Category B

Category B trees are of moderate quality and value with a reasonable life expectancy, at least 20 years, and should be retained where possible within the development. These trees are identifiable on the TLCP as mid blue. They may be further sub-divided as follows:

B1 – Trees that might be included in the high category but are downgraded because of their impaired condition;

B2 - Trees that are usually present in groups forming distinct landscape features, thereby attracting a higher collective rating than they might as individuals; and

B3 - Trees with clearly identifiable conservational or cultural benefits.

6.3.2 Category C

Category C trees are of low quality and value and are currently in adequate condition to remain until new planting could be established. These trees should not constrain development, although relocation should be considered where possible. They are identifiable on the TLCP as grey. They may be further sub-divided as follows:

C1 - Trees that do not qualify in the higher categories;

C2 - Trees that are present in groups or woodlands that do not form a distinct landscape feature; and

C3 - Trees with very limited conservational or other cultural benefits.

6.3.3 Category U

Category U trees are those considered unsuitable in their current state for retention within a development. They should ideally be removed prior to the commencement of construction unless otherwise stated. They are identifiable on the TLCP as dark red. These trees are in such a condition that any existing value would be lost within 10 years.

A single tree or group can come under one or more sub-headings. This does not confer on it a higher value than a tree with a single value.

6.4 Additional Comments

Comments include a brief description, if required, of the tree with comments on the form, vitality, health and any significant defects that may be present.

6.5 Root Protection Areas (RPAs)

In respect of all trees surveyed the RPA has been calculated and is given in the Tree Survey Schedule. The figure given represents the radial distance, from the tree's trunk, at which the barriers should be erected. However, it must be borne in mind that the figure derived from this calculation, whilst compliant with BS 5837, is merely notional. RPA's are much more effectively represented on plan, where the shape of such can be manipulated, so as to reflect the anticipated rooting area of each

subject tree/group; tree roots can be greatly constrained by adjacent watercourses, highways, retaining walls, buildings etc, meaning a reduced radial distance on the side of such features and a greater distance being required on the opposite side in order to achieve the RPA.

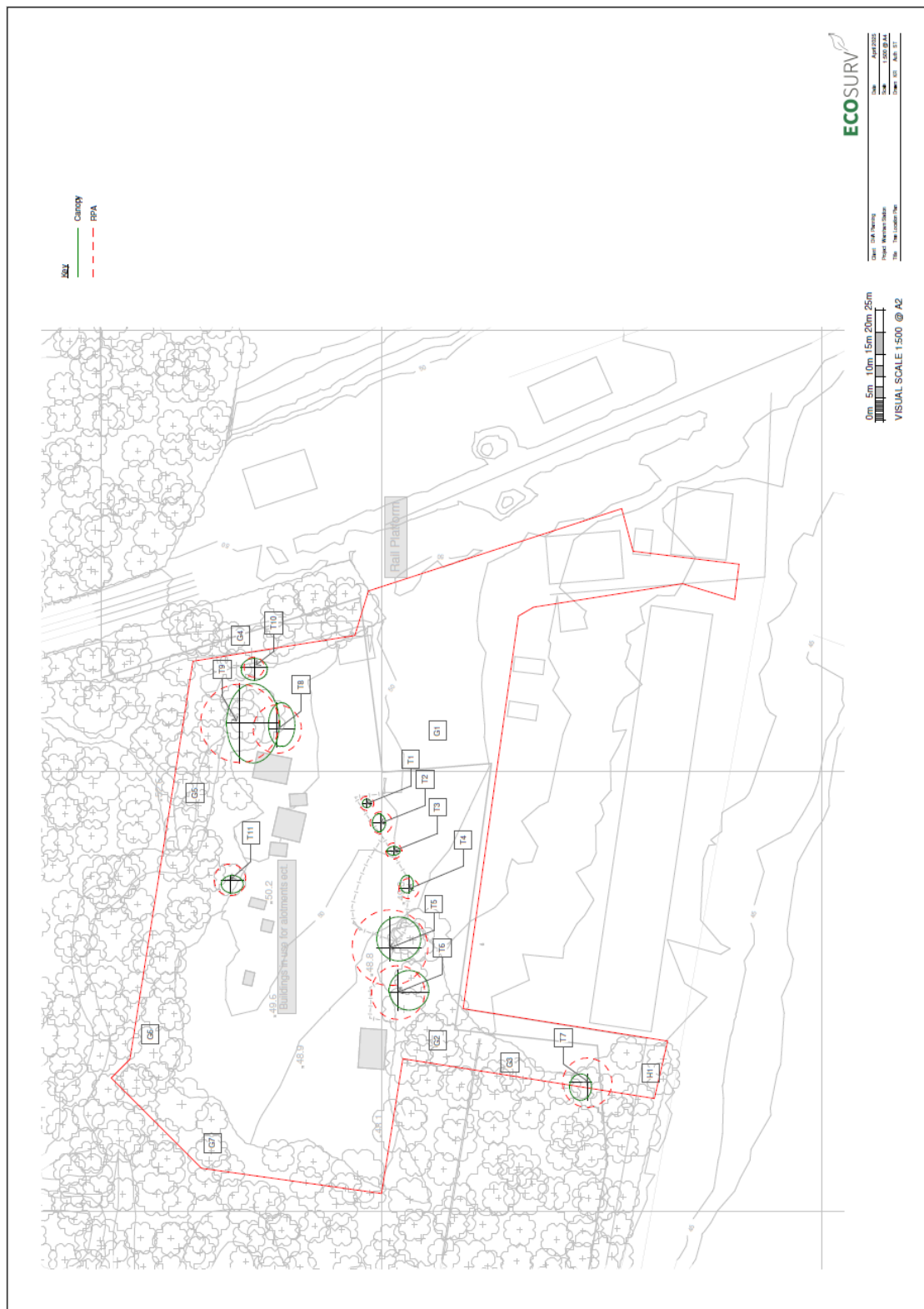
Root protection areas have only been calculated for those trees found within the vicinity of the proposed development.

The RPA is calculated thus:

Trees with a single stem:	Stem diameter x 12 = RPA radius
Trees with 2 – 5 stems the combined stem dia. is calculated as follows:	$\sqrt{(\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \dots + (\text{stem diameter } 5)^2}$
Trees with more than 5 stems the combined stem dia. is calculated as follows:	$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$

7 RESULTS

Tree Location Plan



Tree Survey Schedule

ID	Species	Height (m)	Diameter (mm)	Crown Spread (m)				First Stem (m)	Crown Clearance (m)	Age	Physiological Condition	Structural Condition	Estimated Remaining Contribution	Nest	Bat	Comments	Retention Category	RPA (m)
				North	East	South	West											
Trees																		
T1	Beech <i>Fagus sylvatica</i>	5	130	1	1	1	1	1.2	1.5	Young	Good	Good	Long	No	No		B2	1.6
T2	Ash <i>Fraxinus excelsior</i>	7	210	2	2	1	2	1.7	2	Young	Fair	Good	Long	No	No		B2	2.5
T3	Horse Chestnut <i>Aesculus hippocastanum</i>	4	150	1.5	1	1.5	1	1.5	2	Young	Good	Good	Long	No	No		B2	1.8
T4	Silver Birch <i>Betula pendula</i>	8	190	2	3	1	1	2	2	Young	Fair	Fair	Medium	No	No	Leans to the east	B2	2.3
T5	Scots Pine <i>Pinus sylvestris</i>	16	720	3	7	7	3	1	2	Mature	Fair	Fair	Long	No	No	Previous management evident, swing attached	C2	8.6

T6	Scots Pine <i>Pinus sylvestris</i>	17	510	5	2	7	4	1	2	Mature	Fair	Fair	Long	No	No	Previous management evident	C2	6.1
T7	European Pear <i>Pyrus communis</i>	5	470	4	2	1	4	1.5	1	Mature	Poor	Poor	Medium	Yes	No		U	5.6
T8	Oak <i>Quercus robur</i>	11	460	2	6	4	4	3	3	Mature	Good	Good	Long	No	PRF-I	TPO - 7273	B1	5.5
T9	Oak <i>Quercus robur</i>	15	740	3	9	9	9	4	3	Mature	Fair	Good	Long	No	PRF-I	TPO – 7273 Swing attached	B1	8.9
T10	Hazel Alder <i>Alnus serrulata</i>	8	190	3	2	3	3	0.1	1	Young	Poor	Fair	Short	No	No		C2	2.3
T11	Ash <i>Fraxinus excelsior</i>	10	300	2	1	2	3	1	2	Early-Mature	Poor	Poor	Very Short	No	No	Symptoms of ash dieback observed	U	3.6
Groups																		
G1	Cypress <i>Cupressus sempervirens</i>	6	130			1	1			Early-Mature	Good	Good	Long	No	No		B3	

G2	Crab Apple <i>Malus sylvestris</i> Hawthorn <i>Crataegus monogyna</i> Buddleia <i>Buddleia</i> , Goat Willow <i>Salix caprea</i>	6	Maximum 210	-	-	-	-	-	-	Young	Poor	Poor	Very Short	Yes	No	Self-seeded scrub	U	
G3	Yew <i>Taxus baccata</i> , Wild Cherry <i>Prunus avium</i> , Goat Willow <i>Salix caprea</i>	12	Maximum 340	-	-	-	-	-	-	Early-Mature	Fair	Fair	Long	Yes	No	Self-seeded	C2	
G4	Hawthorn <i>Crataegus monogyna</i> , Alder <i>Alnus glutinosa</i> , Ash <i>Fraxinus excelsior</i> , Wild Cherry <i>Prunus avium</i> , Oak <i>Quercus robur</i>	10	Maximum 560	-	3	-	5	-	-	Young to Early-Mature	Fair	Fair	Long	Yes	PRF-I	Active Jackdaw Nest	C2	
G5	Wild Cherry <i>Prunus avium</i> , Alder <i>Alnus glutinosa</i> , Ash <i>Fraxinus excelsior</i>	8	Maximum 300	-	-	-	-	-	-	Early-Mature	Poor	Fair	Medium	Yes	PRF-I	Brash pile	C3	
G6	Goat Willow <i>Salix caprea</i> , Ash <i>Fraxinus excelsior</i> , Hawthorn <i>Crataegus monogyna</i>	6	Maximum 200	-	-	-	-	-	-	Early-Mature	Fair	Fair	Medium	Yes	No		C3	

G7	Ash <i>Fraxinus excelsior</i> , Hawthorn <i>Crataegus monogyna</i> Goat Willow <i>Salix caprea</i> Wild Cherry <i>Prunus avium</i>	8	Maximum 300	-	-	-	-	-	-	Early-Mature	Fair	Fair	Medium	Yes	PRF-I		C3	
Hedgerows																		
H1	Ash <i>Fraxinus excelsior</i> , Elder <i>Sambucus nigra</i> , Holly <i>Ilex aquifolium</i> , Hawthorn <i>Crataegus monogyna</i>	6	Maximum 150	-	-	-	-	-	-	Young to Early-Mature	Fair	Fair	Long	Yes	No		B2	

8 TREE PROTECTION SCHEME

It is important to ensure all parties involved in the planning and design of the proposed development is aware of this report and has access to a copy as soon as it is released.

8.1 Arboricultural Impact

The trees near to areas of demolition and where new surfaces encroach into the RPA are most susceptible to damage as a result of the development. Tree protection should be installed as per the Tree Protection Plan and contractors should be mindful of vehicular movement over RPAs and around canopies as not to cause damage and plan vehicular access routes accordingly. Due to their proximity to the works some trees are more likely to be directly impacted by the development as shown;

Trees impacted by the development		RPA % Incursion
Trees: 1, 2, 3, 4, 5, 6, 7, 10 & 11	To be removed	N/A
Groups 2 & 3	To be removed.	N/A
Hedgerow H1	To be removed	N/A
Tree 9	Retained and protected by tree protection fencing.	N/A
Group 1	New hard landscaping within RPAs and Canopy. One tree to be removed.	10%
Groups: 4, 5, 6 and 7	New soft landscaping within Canopy. Buffer between development.	N/A
Tree 8	Construction required within RPA and Canopy.	0.07%

8.2 Responsibilities

Successful implementation of tree protection measures and long-term tree retention depends on co-ordination between the client and key personnel involved in the development.

The client and agent shall ensure that:

- the site manager and all other personnel are provided with this document;
- all planning conditions relating to underground works, services, trees and landscaping are cleared before development commences;
- all requirements of this Tree Protection Scheme are adhered to;
- the site manager is updated of any approved changes or variations to this document.

The client and site manager shall ensure that:

- A copy of this document with the plan in the results section is easily accessible for site personnel to refer to before and during the time construction activity is taking place;
- All personnel working on the site are made aware of the tree protection plan and arboricultural method statements covering any activities they will undertake. This duty includes delegating the task of briefing personnel in the absence of the site manager.

- The tree protection measures are left in place until the construction phase of development is completed, except with the written consent of the LPA.
- Site personnel are updated of any approved changes or variations to the approved tree protection measures.

All personnel must work in accordance with this document at all times, or in accordance with any approved variation.

8.3 Procedures for incidents:

If any breach of the approved tree protection measures occurs:

- The Local Planning Authority Tree officer or other Planning Officer and Ecosurv Ltd shall be notified.
- The site manager must be informed immediately.
- Swift action must be taken to halt the breach and prevent any further breach.
- Damage mitigation measures appropriate to the scale of the incident will be deployed where required.

8.4 Prohibited Activities

The following must not be carried out under any circumstances:

- Cutting down, uprooting, damaging or otherwise destroying any retained tree.
- Lighting a fire within 10 metres of the canopy of any retained tree.
- Equipment, signage, fencing, tree protection barriers, materials, components, vehicles or structures shall not be attached to or supported by a retained tree.
- Mixing cement, chemical toilets and other use or storage of anything that would be harmful to trees shall not take place within, or close to a Root Protection Area (RPA).
- The distance away from the RPA must be sufficient, and the slope of the site must be such that contamination of soil in the RPA would not occur if there were spillage, seepage or displacement.
- No plant or equipment or vehicle with a hydraulic arm such as a mini digger shall be operated within striking distance of the stem and branches or the RPA of any retained tree unless otherwise specified in this report.

No alterations or variations shall be made to the approved tree protection measures without written approval from the LPA.

8.5 Timing and order of operations

The development must be carried out in the following order unless otherwise agreed in writing with the LPA. Each step must be completed before moving onto the next:

1. Installation of tree protection barriers and temporary ground protection in areas indicated on plan and areas of special engineering.

2. Construction
3. Removal of the remaining ground protection and barriers.
4. Landscaping

8.6 Protective barriers and ground protection

Barriers

The barriers shall be installed and removed in accordance with the timing of operations above and laid out in accordance with the Tree Protection Plan. The appended notice should be used to create all weather notices that must be added to the tree protection barriers or suitable intervals. For this site, the existing boundary fence may be used as a tree protection barrier. In the event of any panel or support becoming damaged, this must be immediately reinforced by adding panels with the designs below as appropriate.

The default specification is a vertical and horizontal scaffold framework, braced to resist impacts, as per appendix 1. The vertical tubes are spaced at a maximum interval of 3m and these are driven securely into the ground. Welded mesh panels are securely attached to the frame. During installation it is important to consider the position of below ground services and structural roots, which must not be damaged. Where these constraints prevent the use of this specification, an alternative specification may be implemented.

Alternative tree protection barrier

2m tall welded mesh panels standing in rubber or concrete feet joined using a minimum of two anti-tamper couplers installed so they can only be removed from inside the protected area. The fence couplers should be at spaced least 1 m apart, but uniformly across the whole barrier. These panels must be supported within the protected area with struts attached to a base plate secured by ground pins as per appendix 2.

Where the fencing is installed above retained hard surfacing and / or it is otherwise not feasible unfeasible to use ground pins (e.g. due to underlying services or structural roots), the struts can be mounted on a block tray as per appendix 2.

Ground protection

The ground protection might comprise one of the following:

- 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.

8.7 Tree Protection Plan



9 ARBORICULTURAL METHOD STATEMENT

The most significant consideration throughout the works is to protect the existing trees and roots during the demolition and construction works.

To avoid disturbance to the physical protection of the trees, it is essential to make allowance for and plan all construction operations which will be undertaken in the vicinity of trees. Factors that need to be considered include, but are not limited to:

- Site construction access;
- The intensity and nature of the construction activity;
- Contractors' car parking;
- Phasing of construction works;
- The space needed for foundation excavations and construction works;
- The availability of special construction techniques;
- The location and space needed for all temporary and permanent apparatus and service runs, including foul and surface water drains, land drains, soakaways, gas, oil, water, electricity, telephone, television or other communication cables;
- All changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls and back fillings;

The trees near to areas of construction and where new surfaces encroach into the RPA are most susceptible to damage as a result of the development. Tree protection should be installed as per the Tree Protection Plan and contractors should be mindful of vehicular movement over RPAs and around canopies as not to cause damage and plan vehicular access routes accordingly. Due to their proximity to the works some trees are more likely to be directly impacted by the development as shown -

- Construction is required within the RPA of Tree 8:
 - Designs for foundations that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project engineer. In shrinkable soils, the foundation design should take account of the risk of indirect damage.
 - Root damage can be minimized by using:
 - Piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm;
 - Beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.
 - Slabs should be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil

surface). In such cases, a specialist irrigation system should also be employed (e.g. roof run-off redirected under the slab). The design of the foundation should take account of any effect on the load-bearing properties of underlying soil from the redirected roof run-off. Approval in principle for a foundation that relies on topsoil retention and roof run-off under the slab should be sought from the building control authority prior to this approach being relied on.

- Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for temporary ground protection. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile.
- The structure should be designed with due consideration for these tree's ultimate growth so as to reduce the need for frequent remedial pruning or other maintenance as above-ground damage can occur to trees and structures by the continuous whipping of branches against the fabric of a building. Branch ends might have to be cut back periodically, possibly affecting the shape of the tree.
- Access facilitation pruning should be applied before construction works commence to ensure collision between machinery, vehicles and the trees does not occur.
- New hard landscaping is required within the RPA and canopy of Group 1:
 - The design should not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation. If it is intended to use the new surface for construction access, it is essential that the extra loading and wear arising from this are taken into account during the design process.
 - New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.
 - If the new surface is likely to be subject to de-icing salt application, an impermeable barrier should be incorporated to prevent contamination of the rooting area. Run-off should be directed away from the RPA.
 - Land drainage within the RPA should be designed to avoid damage to the tree and the soil structure, e.g. sand slitting formed by compressed air soil displacement with the slits set radially to the tree.
 - Access facilitation pruning should be applied before construction works commence to ensure collision between machinery, vehicles and the trees does not occur.
- New soft landscaping within the RPA and canopies of trees in groups G5, G6 & G7 and T9:
 - The design should not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation. If it is intended to use the new surface for construction

access, it is essential that the extra loading and wear arising from this are taken into account during the design process.

- Where fenceposts are to be installed within RPA fence post holes should be dug by hand within the root protection areas. Holes will have plastic sheeting inserted before pouring of concrete mixture. If significant roots are found within these locations (>25mm in diameter) the post hole location should be moved.
- Demolition of the existing farm buildings is required within the RPA and canopy of T8 and in close proximity to T9;
 - Existing ground levels should be retained within the RPA and the topsoil within it should be retained in situ. If required, manual excavation of the foundations within the RPA should be strictly within the area of demolition and should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
 - Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible.
 - Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability.
 - Access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree. Working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist.
 - Demolition should be undertaken inwards within the footprint of the existing building.
- The RPAs of all other trees can be safely protected from compaction or other disturbance using barrier and/or avoidance. Access facilitation pruning should be undertaken before construction works commence to ensure collision between machinery, vehicles and the trees does not occur.
 - Trees to be pruned prior to construction works include T8, T9, G1, G4 & G7.
 - Crown lifting should follow BS3998 to ensure no long term damage is done to pruned trees.
 - No more than 15% of the trees total live foliage/canopy should be removed.
 - The live crown should span at least 60% of the trees total height after pruning.
 - Prune back to lateral branches. Cut limbs back cleanly to a main trunk or a large lateral branch that is at least one-third the diameter of the limb being removed.
- A designated storage area is to be created away from retained trees. All materials for construction purposes are to be stored in this compound. Care must be taken to avoid the leakage or leaching of noxious materials into the soil.

The arboricultural impact is moderate-high and can be mitigated with tree works, protective barriers, ground protection and arboricultural methodology.

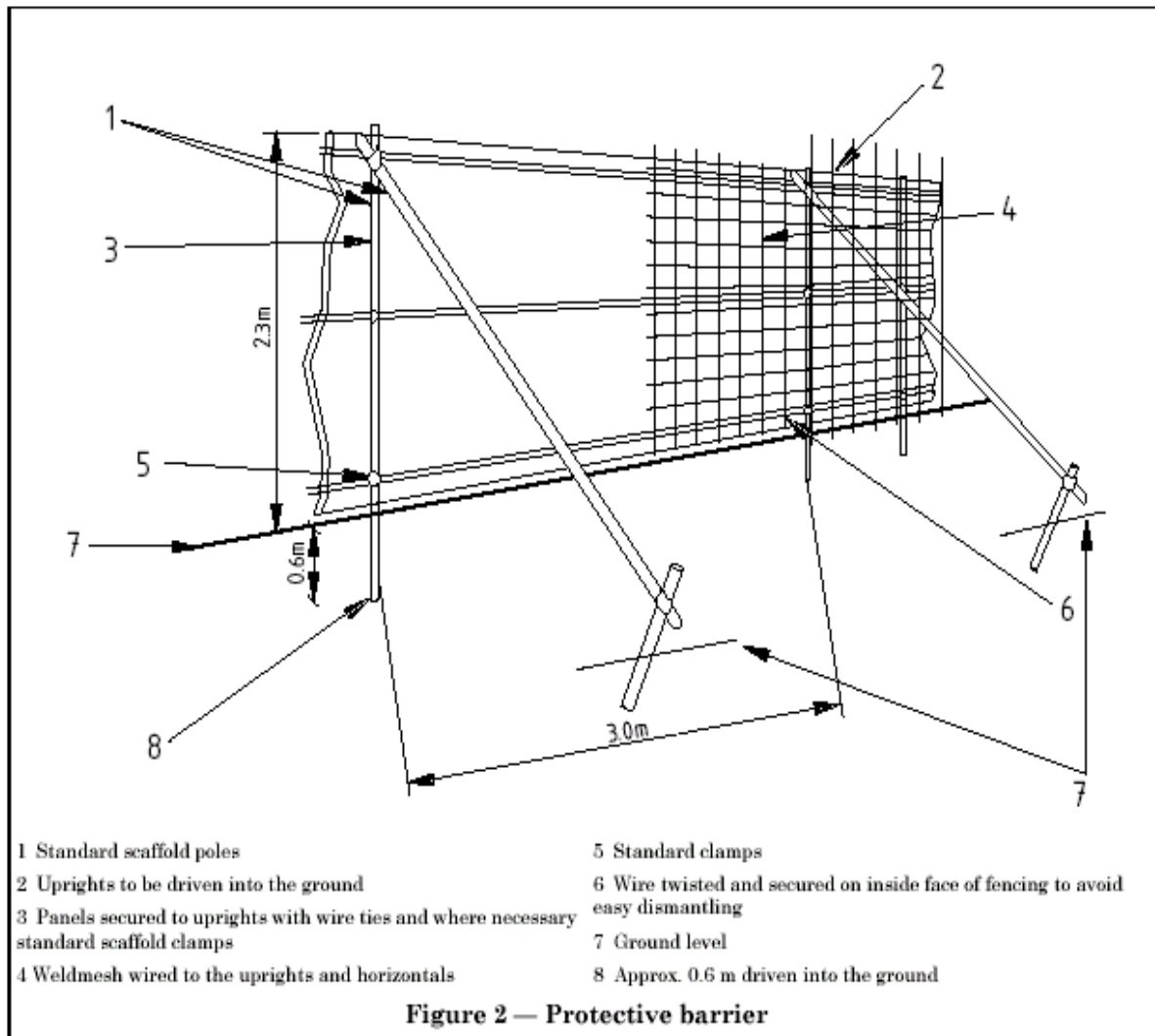
Any tree works or vegetation removal should start outside of the bird breeding season (March – August inclusive). Should this not be the case, a survey of these should be undertaken by a suitably qualified ecologist to identify if nesting is taking place and an appropriate buffer identified where works should not take place until the young have fledged.

10 REFERENCES

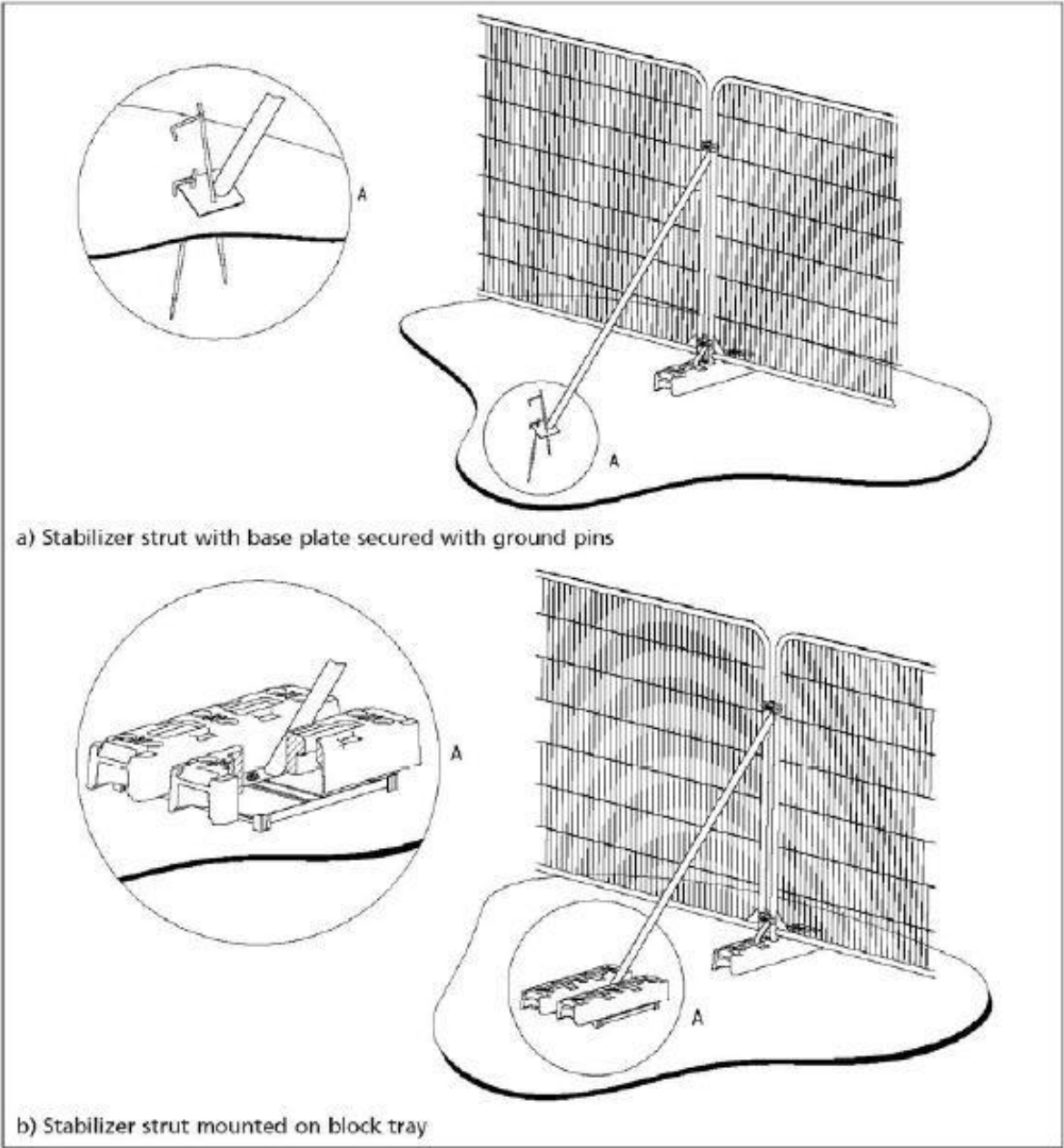
- British Standard 5837:2005 'Trees in Relation to Construction: Recommendations.'
- British Standard 3998:1989 'Recommendations for Tree Work'.
- The Body Language of Trees, C Mattheck, H Breloer.
- Mattheck, C. (2007), Updated Field Guide for Visual Tree Assessment

11 APPENDICES

Appendix 1: Typical barrier to protect trees



Appendix 2: Above ground stabilising system



Appendix 3: Typical barrier notice



Appendix 4: Criteria for Categorisation

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	Colour Dark red RGB code 127-000-000
Trees to be considered for retention		
1 Mainly arboricultural qualities		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	3 Mainly cultural values Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees with material conservation or other cultural value
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees with no material conservation or other cultural value
2 Mainly landscape qualities Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features		Colour Light green RGB code 000-255-000
3 Mainly cultural values Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality		Colour Mid blue RGB code 000-000-255
4 Mainly landscape and cultural benefits Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits		Colour Grey RGB code 091-091-091

Appendix 5: Satellite Image (Google Earth)



(@Google Satellite Image 2026)

Appendix 6: Site Images

No.	Description	Image
1.	Group 1	
2.	T1	
3.	T2, T3	

4.	G2	
5.	G3, T7	
6.	G3	

7.	T8	
8.	G5, G6, T10	
9	G8	