

**WALNUT TREE COTTAGE, SHRIPNEY LANE,  
SHRIPNEY, WEST SUSSEX**

**TREE SURVEY, ARBORICULTURAL IMPACT ASSESSMENT  
AND TREE CONSTRAINTS PLAN**

**On behalf of**

**MRS SABLE**

**May 2019**

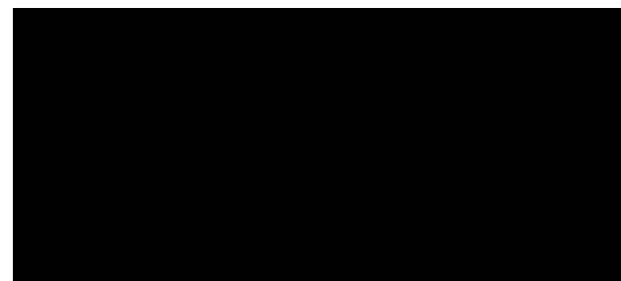
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# APPOINTMENT

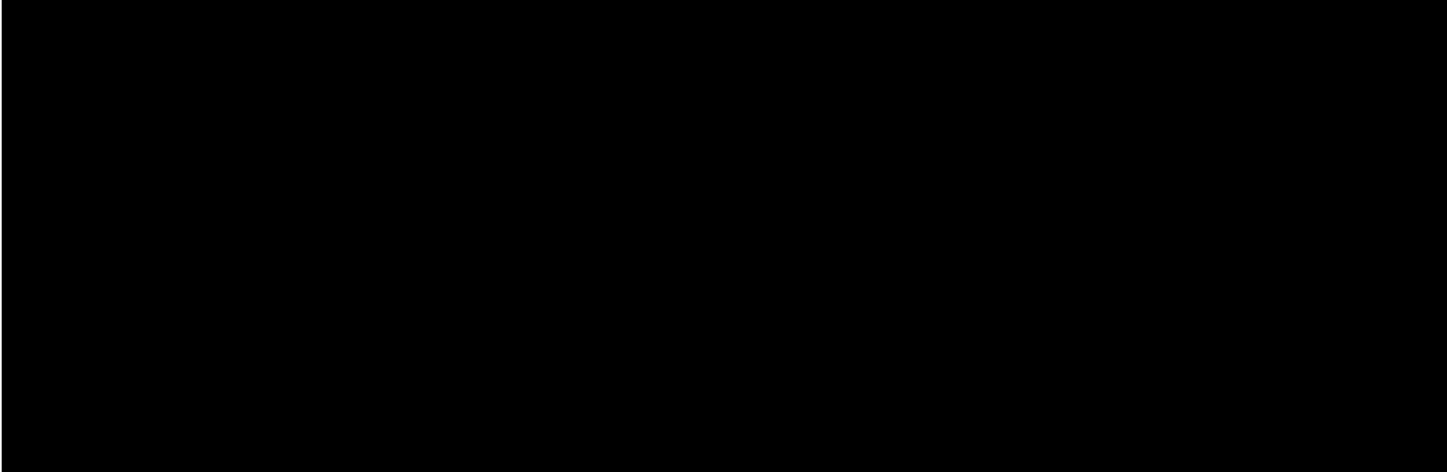
WH Landscape Consultancy Ltd (**WHLandscape**) has been appointed by Mrs Sable to undertake a Tree Survey and to prepare an Arboricultural Impact Assessment (AIA) and Tree Constraints Plan (TCP) to support the design proposal for the construction of a single dwelling on land adjacent to Walnut Tree Cottage, Shripney Lane, Shripney, West Sussex, PO22 9NR.

**WHLandscape** has an established track record of carrying out Tree Surveys for development proposals using British Standard (BS) 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

**This report has been prepared by:** Seb Macleod NC Hort/Arb. L6 Dip Arb. (Lantra Professional Tree Inspection)

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This document has been prepared in accordance with the scope of **WHLandscape's** appointment with its client and is subject to the terms and conditions of that appointment.



# **CONTENTS**

- 1 INTRODUCTION
- 2 CONSTRAINTS TO PROPOSED DEVELOPMENT
- 3 TREE SURVEY
- 4 TREE SURVEY FINDINGS
- 5 TREE SURVEY CONCLUSIONS/RECOMMENDATIONS
- 6 ARBORICULTURAL IMPACT ASSESSMENT
- 7 REFERENCES

## **TABLES**

TABLE 1 - SURVEY SCHEDULE KEY

TABLE 2 - SURVEY SCHEDULE

## **FIGURES**

FIGURE 1 - TREE CONSTRAINTS PLAN

## **APPENDICES**

APPENDIX 1 - BS5837:2012 DEFAULT SPECIFICATION FOR PROTECTIVE BARRIER

APPENDIX 2 - CASCADE CHART FOR TREE QUALITY ASSESSMENT

# 1. INTRODUCTION

**1.1.** WHLandscape has been instructed by Mrs Sable to conduct a Tree Condition Survey, Arboricultural Impact Assessment and provide a Tree Constraints Plan, to support the planning application for the construction of a new dwelling at their property Walnut Tree Cottage, Shripney. The survey is to guide the design proposal, outline any constraints that the trees on site pose to the development process, and indicate measures required to protect those trees to be retained. The report conforms to the guidance set out in BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

**1.2** This initial arboricultural report includes a survey of the significant trees (those with stem diameter 150mm > measured at 1.5m above ground level), hedges, shrubs or groups of trees currently found on the site (outlined by the plan provided), as well as those on adjacent land that could impact on any proposed development. The quality and condition of these trees is to be assessed and categorised. Any management recommendations deemed necessary are to be put forward.

**1.3** The trees surveyed are to be categorised A, B or C, for those to be considered for retention, or U for those unsuitable for retention. Further sub-categories of 1, 2 or 3 are given for those to be considered for retention. (See Cascade chart for tree quality assessment in Appendix 2). Categorisation will be made in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*.

**1.4** A Tree Constraints Plan (TCP), guided by the above and the below ground constraints that the surveyed trees on site, or adjacent land, may pose to the development proposal, is provided (Figures 1 & 2). The constraints to be considered will include the Root Protection Areas (RPA) and Construction Exclusion Zones (CEZ) that trees will require during and post construction if they are to be retained, as well as the current ground clearance and spread, that may affect the design proposal and construction access.

**1.5** The report includes an Arboricultural Impact Assessment to outline and mitigate the potentially adverse tree related impacts that the design proposal poses and to support the planning application.

**1.6** Prior to the commencement of any construction activity, an Arboricultural Method Statement will need to be provided in order to guide the application of the special measures required to ensure the protection of retained trees during and post construction.

**1.7** The 0.2 hectare site stands centrally within the village of Shripney, with a large garden surrounded by a low wall. The site contains an existing residential property close to the highway boundary, a large converted outbuilding and garage. The garden is well maintained and contains many shrub and herbaceous borders and a vegetable patch. A number of veteran fruit trees and young ornamental tree species, as well as a large willow pollard and sycamores situated along the northern boundary are also present in the garden. The site is located within a mature residential area with mature trees and gardens.

**1.8** The proposal is to split the large garden into two plots and construct an additional single storey dwelling with patio area on the eastern part of the site. A plan of the design proposal has been provided by James Wells Architects, drawing number: 103D dated: Feb 2019. This has been overlaid into the TCP (see Fig.1) to illustrate any conflicts between the trees on site and the proposed development

**1.9** The survey will consider those trees nearby on adjacent land that could pose above or below ground constraints to the development of the site.

**1.10** An apple tree and large willow pollard in the garden directly to the rear of the existing dwelling are far removed from the area proposed to be developed but have been included in the survey at the request of the clients. Otherwise the majority of the trees to the west of the new boundary line (shown in dashed blue on the TCP) have not been included in the schedule as they do not pose a constraint to the proposal due to their remoteness from the area to be developed.

**1.11** The site is within the Shripney Conservation Area administered by Arun District Council. It does not contain any trees, or groups of trees, subject to Tree Preservation Orders.

**1.12** The soil type for the site is 'Loamy soils with naturally high groundwater'. Therefore, subsidence damage that can potentially be caused by trees on shrinkable clay soil is unlikely. However, it is recommended that the soil is sampled and tested to ensure that it does not contain shrinkable clay.

**1.13** A site visit was undertaken on the 24<sup>th</sup> April 2019 by Seb Macleod in fair weather conditions.

## 2. CONSTRAINTS TO PROPOSED DEVELOPMENT

**2.1** The trees surveyed represent above ground and below ground constraints to the proposed development. Above ground constraints include the size and nature of the branching canopy that can influence where structures/utilities can be placed, or that present barriers to access during or after construction. Shade cast by individual trees can be beneficial or a nuisance and needs to be considered. In addition, the potential ultimate height and spread of any younger trees on site, and the future impacts they may have, must be considered.

**2.2** Below ground constraints are principally concerned with the RPA, or the rooting area, of an individual tree that must be maintained in its current condition (i.e. not excavated, compacted or re-graded) to ensure the continuing health of the tree during and after development. Roots that are 25mm or over must not be damaged to ensure the future structural integrity and physiological function of the tree.

**2.3** It is the default position that new buildings are not positioned within the RPA. No ground should be disturbed, materials stored, or vehicle/pedestrian traffic undertaken within the RPA of a tree to be retained. It is also the default position that construction access must be outside the RPA of any tree to be retained on site. Above and below ground constraints can be mitigated by felling, or pruning, if justified in the impact assessment. Incursion of works into the RPA of a tree to be retained can be facilitated by special construction techniques, if justified in the impact assessment.

**2.4** The RPAs are calculated as per Section 4.6 of BS 5837:2012 and, where applicable, are recorded as an area of a nominal circle or a radius of that circle. The British Standard states the following:

- For single-stem trees, the RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter.
- For trees with more than one stem, one of two calculation methods is to be used:
- For trees with two to five stems:

$$\sqrt{(stem\ diameter\ 1)^2 + (stem\ diameter\ 2)^2 \dots + (stem\ diameter\ 5)^2}$$

- For trees with more than five stems:

$$\sqrt{(mean\ stem\ diameter\ 1)^2 \times number\ of\ stems}$$

**2.5** In all cases, the stem diameters are measured in accordance with Annex C, and the RPA is determined from Annex D of BS 5837:2012. The RPA is capped at 707.0 metres (m) squared or a 15m radius.

**2.6** Where trees are positioned close to adjacent areas of hard standing ground that is impervious to air and water where tree roots are unlikely to ingress, then the RPA may be off set from the centre of the tree to reflect the areas where the roots are more likely to have established.

**2.7** RPAs for hedges will normally be set at a distance from the central base of the hedge calculated as half its average height.

## **OTHER CONSTRAINTS**

**2.8** The above ground area occupied by the crown of a tree; allowances for working space during development; the area of potential shade and debris cast by the tree and, if applicable allowances for future growth of the trees, all pose potential constraints on the site. The extent of these constraints is determined by considering the suitability of the species and its characteristics, plus the existing and future crown spread of the tree. A further consideration is that the crown could be modified by appropriate tree surgery. Site planning and development design must therefore give consideration to these issues in order to prevent future problems arising.

**2.9** Any remedial works on trees to improve safety or to facilitate construction must be undertaken in accordance with BS 3998:2010 British Standard *Tree Work- Recommendations*. Work must be undertaken by qualified and experienced professionals.

**2.10** All services should be directed outside the retained trees' RPAs. However, where it is agreed that services can be located within an RPA, they must be hand-dug in accordance with the principles contained with National Joint Utilities Group Guidelines Vol. 4, in a position no closer than four times the stem circumference of the tree, and dug down to the required level. Small diameter roots should be neatly cut with clean secateurs, whilst roots over 25 millimetres (mm) in diameter and/or large root masses must be retained undamaged. Alternatively, if underground services are to run through the RPAs of trees to be retained, specialist construction techniques, such as impact moling, could be employed to install any pipework at a depth greater than 60 centimetres (cm) from ground level, where tree roots are unlikely to be found.

**2.11** No unplanned construction activity whatsoever must be allowed within the RPAs of trees to be retained. This includes storage of materials, unplanned routing of underground services or incursions by vehicles or site operatives unless specified and accompanied by specialist protection measures.

**2.12** Mixing of cement or concrete, or the storage of fuels must not take place within 10m of the retained trees, nor in any location where a slope in the ground could lead to contamination of the RPA of any tree to be retained.

**2.13** Fires must not be lit in a position where flames could extend to within 10m of the foliage, branch framework or trunk of any tree to be retained on or bordering the site.

**2.14** Landscape works undertaken within the RPAs must be done so as not to damage shallow roots and are to be agreed by the arboricultural consultant. Heavy mechanical cultivation of the soil must not be undertaken within the RPAs of trees to be retained.

**2.15** Changes in soil level should not be undertaken within the RPAs, unless otherwise agreed in writing with the Local Planning Authority (LPA), in order to ensure that the rooting system, including the delicate non-woody roots, are not inadvertently severed or the roots and rooting zone are not compromised by compaction.

**2.16** All soil storage must be outside the RPAs of all retained trees to ensure that any run-off of water or residue does not seep into their RPAs.

## **TREE PROTECTION MEASURES**

**2.17** Tree protection fencing will be required to form Construction Exclusion Zones (CEZ), to prevent construction activity within the RPAs of trees to be retained, or to protect the crowns of trees to be retained. They must be constructed from weldmesh panels of at least a 2.0m height and securely fixed with wire or scaffold clamps fixed to a rigid framework. This framework must be constructed from horizontal and vertical scaffold tubes during the construction period in accordance with the requirements of BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*. Examples of the design specification are shown in Appendix 1.

**2.18** Where tree protection fencing falls outside the RPAs of the retained trees, robust high visibility plastic mesh barrier is recommended in place of the above-mentioned fencing; this will create a visual deterrent and signify the extent of the CEZ.

**2.19** The location of CEZ fencing is shown as a red line in the TCP. This will provide the minimum protection of the retained trees. Any surfacing within the RPA, be it temporary or permanent, must

be of a no-dig design in accordance with the principles of BS 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*.

**2.20** After the erection of the CEZ fencing, a minimum of 2 days' notice must be given to the LPA before any construction, including any ground work, starts on site. The CEZ fencing must be maintained and retained for the duration of the works or until such time as agreed in writing with the LPA.

**2.21** Services and drain runs must be kept outside the fenced RPA of the retained trees unless agreed in advance of construction.

## **ARBORICULTURAL SUPERVISION**

**2.22** A suitably qualified arboriculturist must be retained during the development period to carry out the following:

- To inspect tree protection fencing once erected prior to construction or ground works starting on site.
- To advise of any issues at the request of the LPA, the property owner or contractor as necessary.

**2.23** The details of each visit are to be recorded in a site visit pro-forma, with copies circulated to the contractor, developer and the LPA Tree Officer.

## **3. TREE SURVEY**

**3.1** The tree survey has been undertaken in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* in order to establish and record:

- The principle attributes of those trees on site of stem diameter over 150mm measured at 1.5m from ground level (such as height, stem diameter, height of first branch break, crown spread, crown clearance).
- The Condition, Quality and Value of the trees on site.
- The retention value of those trees as categorised by BS 5837:2012.
- The outline and area of RPA required for those trees to be retained on site, and any other remedial works necessary to ensure a reasonable level of safety, or to facilitate the development in accordance with conditions set out in BS 5837:2012.

**3.2** The findings of the survey highlight which trees are of particular merit and should be marked as a material constraint in the planning process.

**3.3** The suitability of trees for inclusion in the proposed development is considered, with particular regard given to their safe, useful life expectancy, and suitability in the site after development is completed.

**3.4** The Tree Survey was undertaken in accordance with Section 4 of BS 5837:2012, which grades trees into the following categories:

- A – Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- B – Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- C – Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- U – Trees in such a condition that they cannot be realistically retained due to poor condition.

Further subcategories are given as follows:

- Mainly arboricultural qualities (1).
- Mainly landscape qualities (2).
- Mainly cultural values, including conservation (3).

See Appendix 2: Cascade chart for Tree Quality assessment

## **SURVEY LIMITATIONS**

**3.5** This survey was undertaken from ground level using visual assessment techniques only. Physical assessment of suspected decay has been limited to probing with metal rods or sounding with a hammer. No specialist decay equipment or internal investigation tools have been employed during the assessment. No soil samples have been taken in the course of this assessment.

**3.6** The observations and recommendations presented are based on the knowledge, qualifications and experience of the surveyor.

**3.7** All dimensions are measured as far as reasonably practicable, with the plotting of tree locations dependent on the topographical survey provided, or the available satellite coverage at the time of inspection. Stem diameter may have been estimated where trees are on third party land or where

stems are inaccessible due to obstructions by undergrowth. Stem diameter may also have been estimated from best measurements available if the tree is ivy clad. The survey methodology follows that prescribed in BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

**3.8** Trees are dynamic evolving organisms subject to a range of external influencing factors (particularly the weather) the consequences of which may not always be foreseeable under the scope of this survey.

**3.9** This survey will be valid for 12 months from the date of inspection and may become invalid in that period if any works are undertaken on or near to trees assessed in the survey. Such works include unprescribed tree surgery, soil level changes, trenching etc.

**3.10** Under the terms of the Wildlife and Countryside Act 1981 (as amended), the Countryside Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010, it is an offence to disturb any protected species, including their habitat or resting place. It may, therefore, be necessary to obtain expert advice in this area prior to the commencement of any works. This is particularly relevant to nesting birds, bats and their roosts. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found. The nesting season for most birds runs from 1<sup>st</sup> March to 31<sup>st</sup> July. However, this can vary depending on the species and location. During these months, careful inspection must be made before any work commences and works must be postponed if active nests are found.

## **4. TREE SURVEY FINDINGS**

**4.1** Altogether 22 individual trees and 2 hedgerows were individually assessed and appear in the survey schedule (Table 2). The garden has been extensively planted and is well-maintained principally with shrub and herbaceous borders. Many smaller trees and woody shrubs within the site were not individually assessed as they were too small to be considered as an arboricultural constraint to the development proposal. The hedgerow H2 is situated beyond the walled boundary to the east on adjacent land, but is included in the assessment as it could pose a constraint to the design proposal.

**4.2** The majority of the trees included in the schedule consist of aging fruit trees (apple and plum) which are either categorised as C grade due to decline, or U grade (unsuitable for retention), as they

are unlikely to contribute to the amenity of the site beyond ten years. Four apple trees within the garden are categorised as U grade for this reason. A birch (T10) located in the north-east corner of the site is also categorised as U grade due to poor structural condition. Six trees are categorised as B grade, including: three apple trees in better structural and physiological condition than the others on site, and a group of three early-mature sycamores (T7-T9) in the north-east corner of the garden. Further explanation of the method used to categorise trees can be found in the Cascade Chart for Tree Quality Assessment at Appendix 2.

**4.3** The birch (T10) in the north-east corner of the site has previously been managed as a pollard. Several young and healthy appearing stems rise to 8m from an aging and heavily decayed main stem that stands at 1.5m and is in very poor structural condition. The extensive re-growth from the stem has a high potential to fail towards the adjacent property to the north and this tree has been categorised as U grade (unsuitable for retention).

**4.4** The majority of the apple trees assessed in the garden area are in declining condition due to age and many have cushion fungus brackets (*Phellinus pomaceus*) colonising their stems, largely visible on deadwood. This fungal pathogen, commonly found on veteran orchard species, causes a heartwood decay that can contribute to structural failure as the declining physiological condition of the aging tree is less able to respond to the advance of decay. Many of these trees have been heavily pruned to approximately 2m removing all their branching crown structure, they are now attempting to re-grow crowns from epicormic growth (growth emerging from dormant buds). In several cases they have been categorised as U grade as they are unlikely to contribute to the amenity of the site beyond ten years. These U grade trees include T15-T17 and T20.

**4.5** The new proposed entrance to the south of the site will use an existing but currently unused gateway set within in the low boundary wall. The area to be re-established as a drive contains some dense vegetation including a 2.5 - 3m section of the hedgerow H1, adjacent to the existing gateway, which is comprised largely of Photinia and honeysuckle. The section of hedgerow that conflicts with the proposed drive is categorised as C grade and does not contribute significantly to the overall amenity of the site and surrounding area.

**4.6** The conifer hedge H2 which stands beyond the walled boundary to the east of the site is within close proximity to the footprint of the proposed new dwelling. As this hedge stands beyond the low

wall which demarks the boundary, it has been assessed that there is unlikely to be any significant trespassing of roots into the site and therefore H2 does not pose a constraint to the proposal.

**4.7** Three large plum trees (T4-T6) stand mid-way along the eastern boundary of the site. As with many of the fruit trees assessed here, they are aging and beginning to show signs of senescence. Each has had a poor branching union identified within their primary branching structure and their crowns are all heavily congested with large amounts of internal deadwood, along with rubbing and crossing limbs. Although they are among the larger trees assessed, they currently provide only a marginal contribution to the visual amenity of the site and it is doubtful whether they will survive much beyond ten years. Much of the RPAs (and stem positions of T4 and T5) of these three trees falls directly within the footprint of the proposed new dwelling. The low crown spread of these trees on their western side also conflicts with the proposed position of the new dwelling.

**4.8** An apple (T13) stands centrally within the site, is a well-formed tree and has been categorised as B grade. It stands within the footprint of the proposed new patio. A young cherry (T14) also stands within the proposed patio area and could potentially be relocated.

**4.9** The remaining trees at the rear of the site (T7-T12 and T18-T20) are not within the area that is proposed to be developed, or are located in what will remain the rear garden of Walnut Tree Cottage, and do not pose a constraint to the design proposal but will require protection from the development process (i.e. placed in a CEZ).

**4.10** The apple tree (T23) which stands to the rear of the existing dwelling is aging but appears to be in good physiological form. It does however have several extended lateral limbs that could be prone to failure particularly if they become heavy with fruit.

**4.11** The large crack willow (T24) on the rear boundary is a heavy limbed over-mature specimen showing several large branch wound cavities on its stem, which is likely to be subject to some significant internal decay. The tree has been managed as a pollard and shows good, healthy, regrowth following being pruned within the last growing season. Following the recent pruning work the structural condition of the tree overall is considered as acceptable even with the element of decay identified within the main stem.

## 5. TREE SURVEY CONCLUSIONS/RECOMMENDATIONS

**5.1** The trees assessed that are to be retained are largely in a satisfactory structural and physiological condition and suitable for retention, with the exception of several U grade apple trees (T15-T17 and T20) which are recommended for removal although they do not currently pose a structural risk. They could be retained in the short term if desired.

**5.2** The birch (T10) is also graded as U grade due to the poor structural condition of its stem. It is recommended that the limbs emerging from the stem are removed to remove the risk of their failure into the adjacent property. The decayed stem could be retained as a conservation feature as it will be providing habitat for insect species.

**5.3** Several trees will need to be removed as they stand within the footprint of the proposed new dwelling and patio area. These include the three C grade plum trees (T4-T6) on the eastern boundary of the site and a B grade apple (T13) which stands within the proposed patio area. A young establishing cherry (T14) also stands within the proposed patio area but this tree could be relocated. These trees do not contribute significantly to the overall amenity of the site or the surrounding area.

**5.4** A short section of the hedge (H1) on the highway boundary will need to be removed to provide the new vehicle access to the site.

**5.5** It is recommended that the extended lateral limbs of the apple (T23) are reduced by 1-2m in order to lower the risk of complete limb failure that may ruin the form of this tree.

**5.6** Although the structural condition of the crack willow is currently assessed as acceptable, this will diminish as the tree continues to regrow its crown following recent pruning work. It is therefore recommended that the tree is re-pollarded within 4-5 growing seasons in order to maintain acceptable structural condition of its main stem.

**5.7** Following the felling of those trees marked for removal, CEZ fencing will have to be erected around those trees to be retained in order to protect them and their sensitive root zones during development. The position of this fencing is shown as a red line on the TCP, the specification of the fencing is shown in Appendix 1. All construction activity must be excluded beyond the CEZ fencing during the development process.

**5.8** Any changes to the current design proposal may raise further conflicts between trees and the design and development process that may need fresh assessment.

## **6. ARBORICULTURAL IMPACT ASSESSMENT**

**6.1** The calculated RPAs of trees that are marked for retention are highly sensitive. The ground within the RPAs can be easily damaged by construction activity, with potentially negative impacts for those trees concerned. The severance of roots within the RPA of a tree has the impact of reducing its physiological function in terms of its ability to store energy, as well as draw water and nutrients from the soil, to the effect that severe dysfunction or death of the tree can result. The removal of larger roots within the RPA can have the impact of reducing the structural integrity of the tree, leaving it exposed to failure during adverse weather conditions. The wounding resulting from the severance of roots can offer tree pathogens entry points for infection, which can cause dysfunction, loss of structural integrity or death.

**6.2** Roots require access to oxygen and water in order to respire, as well as providing the rest of the tree with water and nutrients. Compaction of the soil will reduce this function to the effect that severe dysfunction or premature death of the tree can result. Installation of a non-porous hard-standing area within the RPA of a tree will have the same impact as compaction of the soil. Contamination of the soil from substances such as cement, fuel or other chemicals, can have severe negative impacts on the physiological function of the root system in terms of its ability to store energy. It can also affect the drawing of water and nutrients from the soil, which can lead to physiological dysfunction, loss of structural integrity, or premature death of the tree.

**6.3** The stems and branching structure of trees are important to their physiological and structural function. The pruning of trees has the impact of reducing their ability to store energy, maintain its physiological system, and photosynthesise, which requires energy from the sun. This can lead to a loss of physiological function, expose the tree to pathogens and potentially lead to decline or premature death. The wounding resulting from the removal of branches can offer tree pathogens entry points of infection. A tree can be unbalanced by excessive pruning on one side, which can leave it exposed to new stresses and lead to failure during adverse weather (the removal of adjacent trees can have the same effect). The inadvertent damage of the stem and branching structure, that may be a consequence of construction activity, has similar potentially negative impacts to pruning.

**6.4** The negative arboricultural impacts of the current proposal are defined by the need to remove the group of three aging plum trees (T4-T6) and an apple (T13) which all stand within the footprint of the proposed dwelling and patio area. The small cherry located within this area could potentially be relocated. A small section of the ornamental hedgerow on the front boundary will also need to be removed to provide new vehicle access into the site. Of these the apple (T13) is assessed as B grade the remaining trees and hedgerow are categorised as C grade.

**6.5** Several U grade apple trees (T15-T17 and T20) are recommended for removal and it is recommended that the U grade birch (T10) is significantly reduced. These recommendations are not a consequence of conflicts with the design proposal and these works will not negatively affect the amenity of the site overall.

**6.6** Overall the impact of the design proposal defined by the need to remove four trees and a short section of hedgerow is assessed as low, and they do not form a significant proportion of the trees within the area to be developed. The trees that are to be retained on the northern boundary of the site are those that provide the majority of the horizontal structure within the garden and adjacent area. The loss of the 3 plum trees (T4-T6) will have the greatest impact overall due to their size. These are aging trees however, and it is doubtful that they will contribute to the amenity of the site much beyond ten years if they were to remain.

**6.7** The remaining potential adverse impacts of the proposed development are restricted to the potential to cause damage to the root systems of trees within proximity to the development area. The potential for such damage must be avoided by the correct implementation of protection measures and methodology used during the development process.

**6.8** Any changes to the design proposal may raise new conflicts or arboricultural impacts that would require fresh assessment.

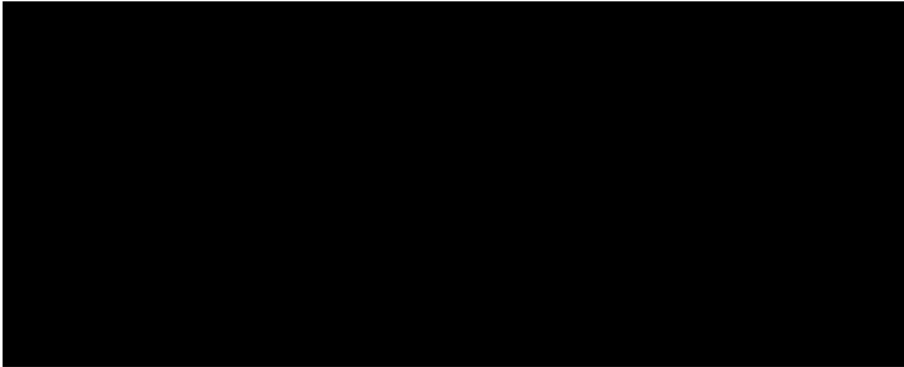
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Derek Patch and Ben Holding – Arboricultural Advisory and Information Service, 2007. *Arboricultural Practice Note 12 – Through the Trees to Development*. Available through: The Arboricultural Association website: <<https://www.trees.org.uk/kentcotrees/Trees.org.uk>



## Table 1 Tree Survey Key and Survey Schedule

**Tree/Tag No:** Individual trees will be denoted as T1, T2 etc. on plans or diagrams. Groups of trees too numerous to individually survey or groups comprising of mainly trees of a stem diameter less than 150mm will be denoted as G1, G2 or W1, W2, etc. Hedgerows will also be shown as groups denoted as H1, H2, etc. Individual trees located in a group or hedgerow can still be assessed individually.

**Species:** using common and scientific name.

### Measurement Conventions:

1. Height, crown spread, and crown clearance is recorded to the nearest half metre (crown spread is rounded up) for measurements up to 10m and to the nearest whole metre if over 10m.
2. Stem diameter is recorded in millimetres rounded to the nearest 10mm.
3. Any estimated dimensions (e.g. for inaccessible trees or those located on adjacent land) are suffixed by "#".

Tree height measured using an electronic clinometer. Site conditions may render this technique impractical in which case an estimated height will be suffixed by "#".

**Stem Diameter:** normally measured at 1.5m from ground level or using techniques as stated in Annex C of BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. If estimated denoted by #

Ivy clad trees will be noted as without removing the ivy a stem diameter will have to be estimated from best measurement available.

**Age Class:** Y - a young tree in first third of life cycle.

EM - an early mature tree in second third of life cycle.

M - a mature tree in the last third of its life cycle.

OM - an over-mature tree in decline due to age.

### Physiological Condition:

**Good (G)** - tree appears to be in a satisfactory physiological condition showing no signs of poor health.

**Fair (F)** - may be showing some minor signs of stress.

**Poor (P)** - slightly compromised showing significant signs of stress i.e. crown retrenchment.

**V. Poor (VP)** - significantly compromised e.g. advanced retrenchment.

**D - Dead.**

### Structural Condition: (Crown, stem and base of tree each given a value)

**Good (G)** - tree appears to be in a satisfactory structural condition with no significant defects found.

**Fair (F)** - some defects, but of low significance.

**Poor (P)** - slightly compromised e.g. poor branch unions found or evidence of decay.

**V. Poor (VP)** - profoundly compromised and imminent failure likely.

**# - cannot be assessed due to ivy/vegetation cover**

**Estimated Remaining Contribution** Measured in years: <10 (under 10 years), 10> (over 10 years), 20>, 40>

**Retention Category:** Denoted as U, A, B, C with sub-categories 1, 2, 3. as defined in Table 1 of BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*.

**Root Protection Area (RPA)** Radius given in m: Area given in m<sup>2</sup>.

**Table 2 BS5837 Survey Schedule**

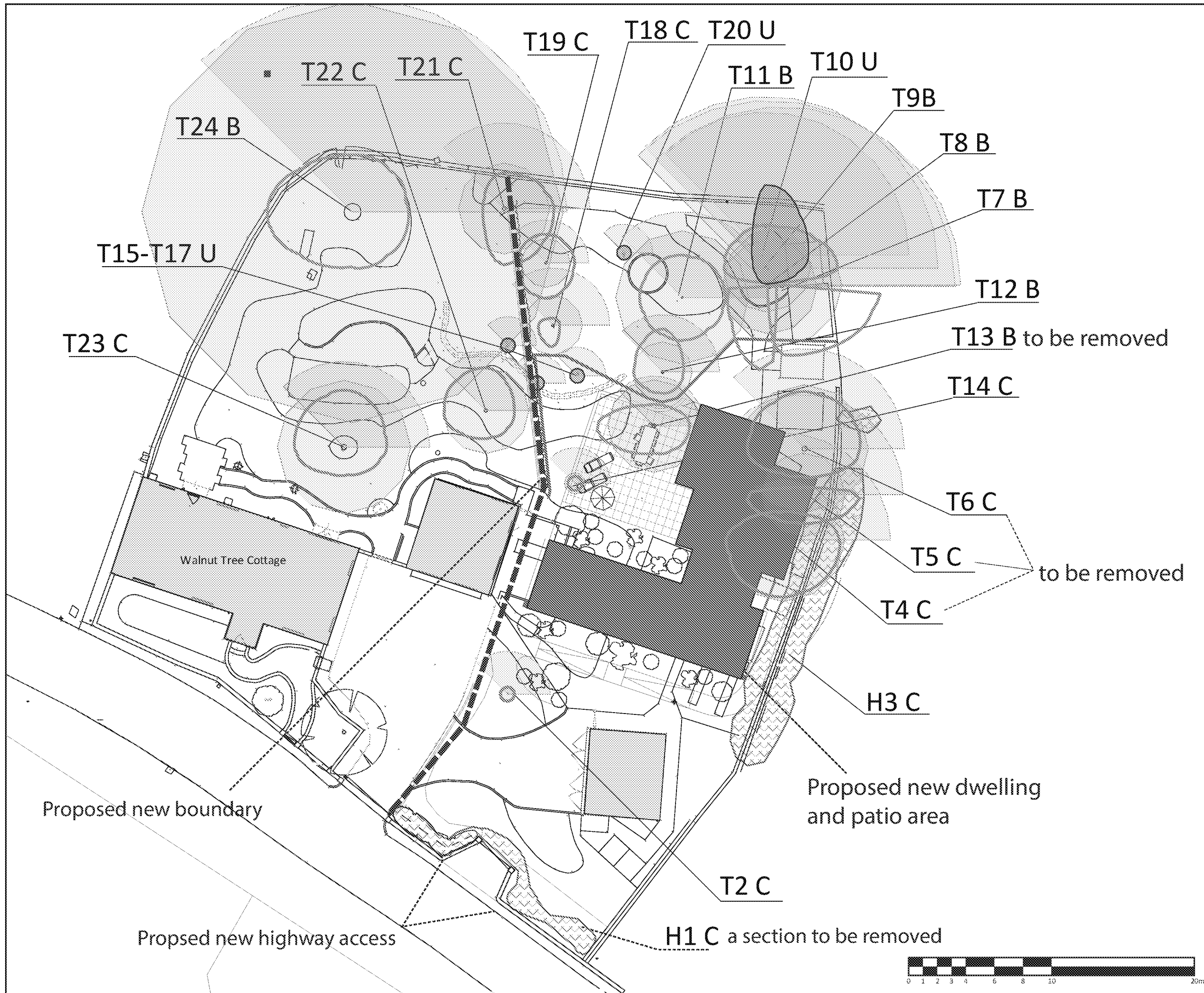
Site: Walnut Tree Cottage, Shripney Lane, Shripney, West Sussex, PO22 9NR

Client: Mrs Sable

 Date: 24<sup>th</sup> April 2019

| Tree/Tag. No | Species                                                                                                                                 | Tree Height (m) | Stem Diameter (mm) | Crown spread (m) |     |     |     | Height & Direction of 1 <sup>st</sup> Branch | Min. Crown Clearance (m) |     |     |     | Life Stage | Physiological Condition | Structural Condition:<br>CROWN/STEM/BASE<br><br>General Observations:<br>Preliminary Management Recommendations | Estimated Remaining Contribution | Retention Category | RPA R (m) | RPA A (m²) |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|------------------|-----|-----|-----|----------------------------------------------|--------------------------|-----|-----|-----|------------|-------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------|-----------|------------|
|              |                                                                                                                                         |                 |                    | N                | E   | S   | W   |                                              | N                        | E   | S   | W   |            |                         |                                                                                                                 |                                  |                    |           |            |
| H1           | Hedgerow of Photinia and Honeysuckle<br><i>Photinia × fraseri</i> ‘Red Robin’<br><i>Lonicera nitida</i><br>and other ornamental species | 2.5             | -                  | -                | -   | -   | -   | -                                            | -                        | -   | -   | -   | EM         | G                       | G/G/G<br>Young hedgerow adjacent to new proposed access point and highway boundary                              | >20                              | C1                 | -         | -          |
| T2           | Silver birch<br><i>Betula pendula</i>                                                                                                   | 3               | 25<br>15<br>15     | 0.5              | 0.5 | 0.5 | 0.5 | -                                            | 0.5                      | 0.5 | 0.5 | 0.5 | Y          | G                       | G/G/G<br>Birch sapling to be relocated                                                                          | >40                              | C1                 | 0.3       | 0.3        |
| H3           | Conifer hedgerow<br><i>Cupressus</i> Spp.                                                                                               | 4.5             | 250                |                  |     |     |     | -                                            |                          |     |     |     | M          | F                       | G/-/-<br>Conifer hedge behind wall on adjacent land<br>Average stem 250mm                                       | >20                              | C1                 | 3.0       | 28         |
| T4           | Plum<br><i>Prunus Domestica</i>                                                                                                         | 7.5             | 350                | 2                | 4   | 4   | 4   | 3s                                           | 2                        | 2   | 2   | 2   | OM         | F                       | F/P/F<br>Veteran tree<br>Congested crown<br>Multiple poor unions at 1.5m                                        | >10                              | C3                 | 4.2       | 55         |
| T5           | Plum<br><i>Prunus Domestica</i>                                                                                                         | 7               | 110<br>150<br>150  | 0.5              | 4   | 2   | 4   | 2s                                           | 2                        | 2   | 2   | 2   | OM         | F                       | F/P/F<br>Veteran tree<br>Congested crown<br>Multiple poor unions at 0.5-2m                                      | >10                              | C3                 | 2.4       | 180        |
| T6           | Plum<br><i>Prunus Domestica</i>                                                                                                         | 7               | 140<br>270<br>200  | 4                | 4   | 2   | 4   | 2w                                           | 2                        | 2   | 2   | 2   | OM         | F                       | F/P/F<br>Veteran tree<br>Congested crown<br>Soil level change to west with spoil piled by at base               | >10                              | C3                 | 4.1       | 52         |
| T7           | Sycamore<br><i>Acer pseudoplatanus</i>                                                                                                  | 12.5            | 340                | 0                | 7   | 5   | 1   | 3w                                           | 12.5                     | 3   | 4   | 4   | EM         | G                       | G/G/G                                                                                                           | >40                              | B1                 | 4.2       | 55         |
| T8           | Sycamore<br><i>Acer pseudoplatanus</i>                                                                                                  | 13              | 270                | 0                | 0.5 | 6   | 3   | 4s                                           | 13                       | 4   | 4   | 4   | EM         | G                       | G/G/G                                                                                                           | >40                              | B1                 | 3.3       | 34         |
| T9           | Sycamore<br><i>Acer pseudoplatanus</i>                                                                                                  | 12              | 250                | 3                | 5   | 1   | 3   | 2e                                           | 8                        | 4   | 4   | 8   | EM         | G                       | G/G/G<br>Ivy colonising stem                                                                                    |                                  | B1                 | 3.0       | 28         |
| T10          | Downy birch<br><i>Betula pubescens</i>                                                                                                  | 10              | -                  | 5                | 3   | 2   | 1   | 1s                                           | 1                        | 3   | 3   | 6   | OM         | F                       | F/P/P<br>Veteran pollard stem with regrowth of 7-8m                                                             | <10                              | U                  | -         | -          |

|     |                                       |     |                  |     |     |     |     |      |   |   |   |   |    |   |                                                                                                                                                                                                      |     |    |      |     |
|-----|---------------------------------------|-----|------------------|-----|-----|-----|-----|------|---|---|---|---|----|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|------|-----|
|     |                                       |     |                  |     |     |     |     |      |   |   |   |   |    |   | Multiple cavities and extensive decay in stem<br>Re-pollard or remove<br>Maintain habitat feature in lower stem                                                                                      |     |    |      |     |
| T11 | Hazel<br><i>Corylus avellana</i>      | 6   | 120              | 3   | 3   | 3   | 3   | -    | 2 | 2 | 2 | 2 | OM | F | F/G/G<br>Hazel coppice stool                                                                                                                                                                         | >20 | B3 | 1.2  | 5   |
| T12 | Apple<br><i>Malus</i> Spp.            | 4   | 170              | 3   | 1.5 | 1.5 | 2   | 1.5n | 2 | 2 | 2 | 2 | OM | F | G/F/G                                                                                                                                                                                                | >10 | B3 | 2.1  | 14  |
| T13 | Apple<br><i>Malus</i> Spp.            | 3.5 | 230<br>130       | 1.5 | 2.5 | 2   | 4   | 0.5e | 2 | 2 | 2 | 2 | OM | F | P/F/F<br>Heavily loaded limb to west                                                                                                                                                                 | >10 | B3 | 2.6  | 22  |
| T14 | Cherry<br><i>Prunus</i> Spp.          | 2.5 | 60               | 0.5 | 0.5 | 0.5 | 0.5 | 1s   | 1 | 1 | 1 | 1 | Y  | G | G/G/G<br>Young cherry to be relocated                                                                                                                                                                | >40 | C3 | 0.9  | 3   |
| T15 | Apple<br><i>Malus</i> Spp.            | 2   | -                | 0.5 | 0.5 | 0.5 | 0.5 | -    | - | - | - | - | OM | P | P/P/F<br>Topped at 2m Epicormic growth only<br>Cushion fungus ( <i>Phellinus pomaceus</i> ) on deadwood on stem                                                                                      | <10 | U  | -    | -   |
| T16 | Apple<br><i>Malus</i> Spp.            | 2   | -                | 0.5 | 0.5 | 0.5 | 0.5 | -    | - | - | - | - | OM | P | P/P/F<br><br>Topped at 2m Epicormic growth only<br>Cushion fungus ( <i>Phellinus pomaceus</i> ) on deadwood on stem                                                                                  | <10 | U  | -    | -   |
| T17 | Apple<br><i>Malus</i> Spp.            | 2   | -                | 0.5 | 0.5 | 0.5 | 0.5 | -    | - | - | - | - | OM | P | P/P/P<br>Topped at 2m Epicormic growth only<br>Cushion fungus ( <i>Phellinus pomaceus</i> ) on deadwood on stem                                                                                      | <10 | U  | -    | -   |
| T18 | Apple<br><i>Malus</i> Spp.            | 4   | 170              | 0.5 | 0.5 | 1.5 | 1   | 1s   | 1 | 1 | 1 | 1 | OM | P | F/P/F<br>Topped and regrown<br>Cushion fungus ( <i>Phellinus pomaceus</i> ) on deadwood on stem                                                                                                      | >10 | C3 | 2.1  | 14  |
| T19 | Apple<br><i>Malus</i> Spp.            | 3   | 70<br>80<br>90   | 2   | 2   | 2.5 | 2   | 0.5n | 1 | 1 | 1 | 1 | M  | F | G/F/G                                                                                                                                                                                                | >10 | C3 | 1.4  | 6.1 |
| T20 | Apple<br><i>Malus</i> Spp.            | 2   | -                | 0.5 | 0.5 | 0.5 | 0.5 | -    | - | - | - | - | OM | P | P/P/P<br>Topped stump with Epicormic regrowth<br>Cushion fungus ( <i>Phellinus pomaceus</i> ) on deadwood on stem                                                                                    | <10 | U  | -    | -   |
| T21 | Plum<br><i>Prunus Domestica</i>       | 6   | 260              | 2.5 | 3.5 | 4   | 1.5 | 1.5e | 1 | 2 | 3 | 2 | OM | F | F/P/G<br>Eastern limb currently propped                                                                                                                                                              | >10 | C3 | 3.0  | 28  |
| T22 | Apple<br><i>Malus</i> Spp.            | 4   | 180<br>140<br>90 | 3   | 2   | 2   | 3   | 0.5w | 2 | 2 | 2 | 2 | OM | F | F/F/G<br>Heavily colonised by clematis                                                                                                                                                               | >10 | C3 | 2.5  | 19  |
| T23 | Apple<br><i>Malus</i> Spp.            | 6   | 380              | 4   | 3   | 2   | 3.5 | 1e   | 2 | 2 | 2 | 2 | OM | F | F/P/F<br>Old tree with multiple stem cavities<br>Heavily loaded lateral limbs<br><br>Recommend reducing lateral limbs to reduce risk of failure                                                      | >10 | C1 | 4.5  | 64  |
| T24 | Crack willow<br><i>Salix fragilis</i> | 15  | 1200             | 4   | 4   | 4   | 6   | 2w   | 1 | 1 | 1 | 1 | OM | F | G/-/G<br>Upper crown pollarded in last 2 seasons<br>Heavy limbed tree<br>Multiple branch wound cavities on stem<br>Must be re-pollarded within next 4-5 years to minimise risk of large limb failure | >20 | B3 | 14.4 | 652 |



**Key:**

**Tree Retention Categories**

- 'A' Category
- 'B' Category
- 'C' Category
- 'U' Category

**Other Plan Features**

- Shading Arc
- Root Protection Area
- Hedge
- Construction exclusion fencing

**Note:**  
The Tree Retention Categories symbols shown in the key are for reference and may not always be present on the plan.

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**Project:**  
Walnut Tree Cottage, Shripney, PO22 9NR

**On behalf of:**  
Mrs Sable

**Figure title:**  
Tree Constraints Plan

**Figure number:**  
Fig.1 (19.890)

**Date:**  
Apr 19

**Scale:**  
1:250 @ A3

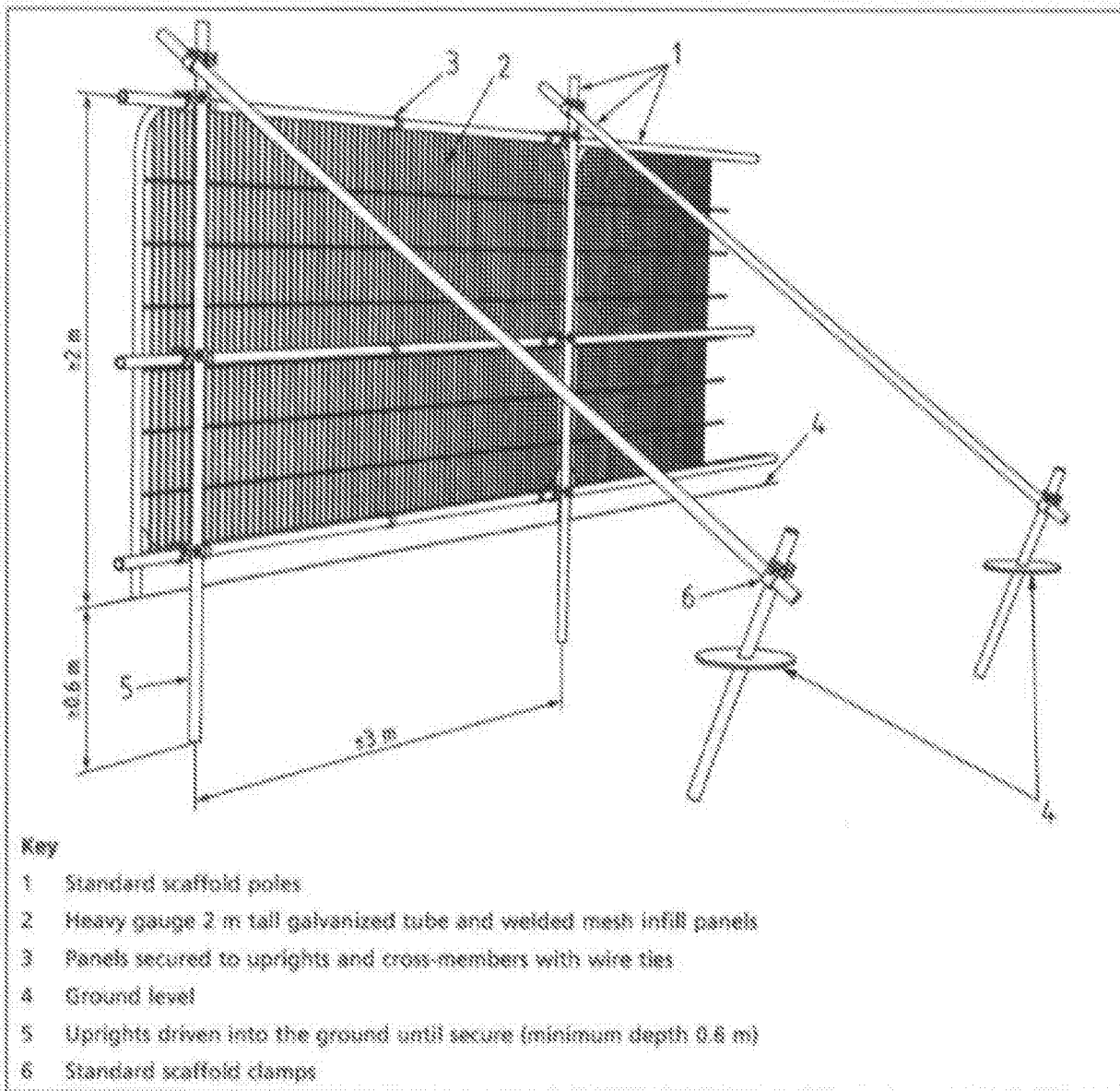
**DB:**  
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WH

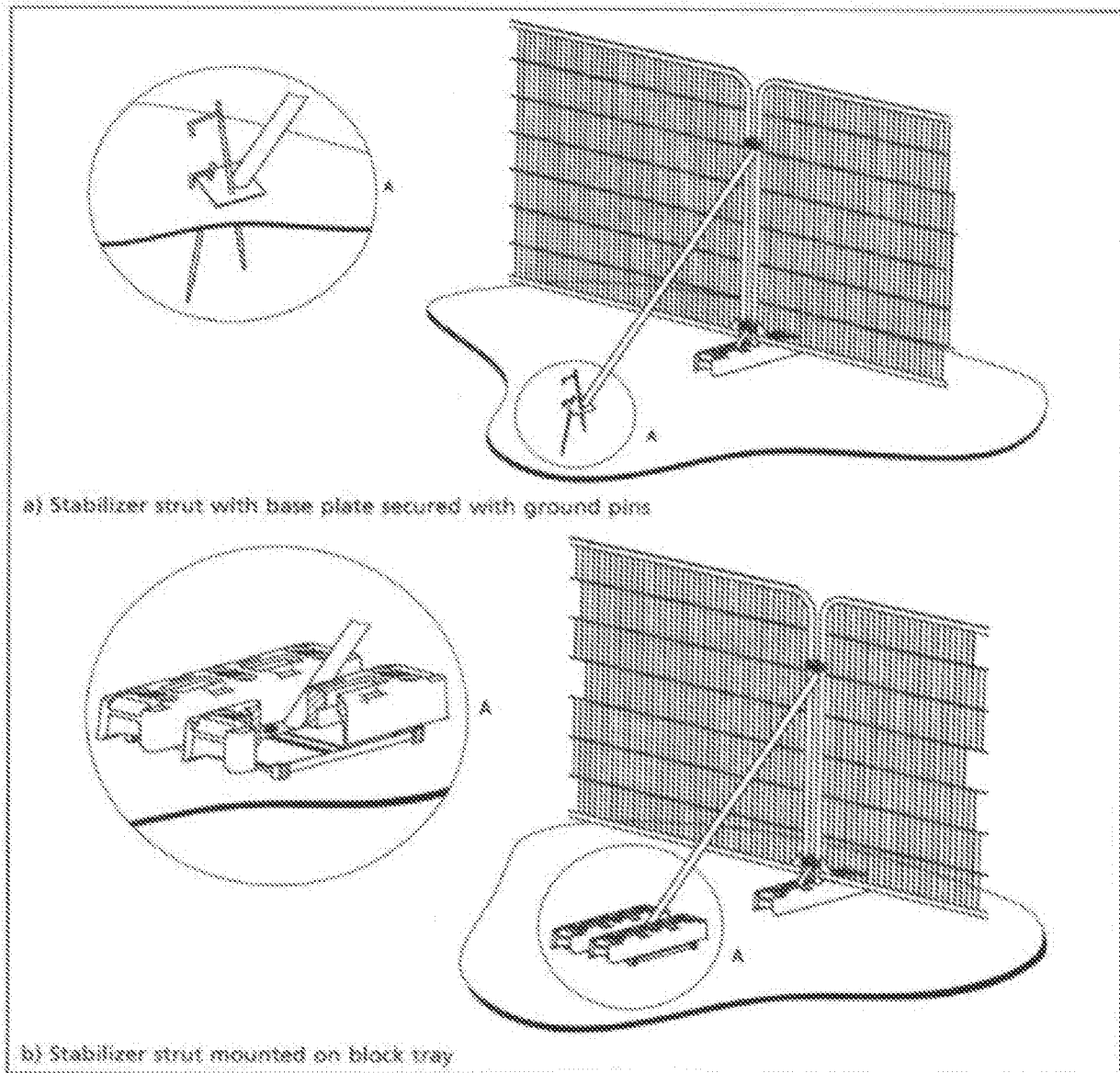
## APPENDICES

### APPENDIX 1

#### BS 5837 (2012) DEFAULT SPECIFICATION FOR PROTECTIVE BARRIER



## BS 5837 (2012) ABOVE GROUND STABILISING SYSTEMS



## APPENDIX 2

Table 1 Cascade chart for tree quality assessment

| Category and definition                                                                                                                                                   | Criteria (including subcategories where appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                   |                                                                                                                                       | Identification on plan |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Trees unsuitable for retention (see Note)                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                        |
| <b>Category U</b><br>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 | <ul style="list-style-type: none"><li>• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unsuitable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>• 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</li></ul> <p><i>NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p> |                                                                                                                                                                                                                                                                   |                                                                                                                                       | See Table 2            |
|                                                                                                                                                                           | 1 Mainly arboricultural qualities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2 Mainly landscape qualities                                                                                                                                                                                                                                      | 3 Mainly cultural values, including conservation                                                                                      |                        |
| Trees to be considered for retention                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                        |
| <b>Category A</b><br>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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features                                                                                                                                                            | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | See Table 2            |
| <b>Category B</b><br>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 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 | Trees with material conservation or other cultural value                                                                              | See Table 2            |
| <b>Category C</b><br>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 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                                                              | Trees with no material conservation or other cultural value                                                                           | See Table 2            |