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**ARBORICULTURAL IMPLICATIONS ASSESSMENT  
FOR  
PROPOSED NINE UNIT  
RESIDENTIAL DEVELOPMENT**

**AT**

**SUNNY CORNER  
COPSE LANE  
WALBERTON  
WEST SUSSEX  
BN18 0QH**

**BY**

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**Our ref: J53.76  
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## **1. INTRODUCTION**

- 1.1 Broad Oak Tree Consultants Ltd. received instructions from Mr. and Mrs. Holden to undertake an inspection of trees located on and immediately adjacent to the site referred to as Sunny Corner, Copse Lane, Walberton, Arundel, West Sussex, BN18 0QH. The purpose of the inspection was to produce a base inventory of the tree stock and an Arboricultural Implications Assessment of development proposals.
- 1.2 The proposals are for the construction of nine detached residential units with garaging, parking and gardens, utilising an existing access point onto West Walberton Lane which will be improved to meet required standards. Details of the proposals will have been submitted by MH Architects and others.
- 1.3 The trees were inspected on Wednesday 22<sup>nd</sup> March 2017 by Tim Laddiman, BSc.(Hons) M.I.C.For. M.Arbor.A., Chartered Arboriculturist and Principal Consultant of Broad Oak Tree Consultants Ltd.

## **2. GENERAL SITE DESCRIPTION**

- 2.1 The site comprises a rectangular grass field orientated east/west located to the south-west of "Sunny Corner", a detached residential property with part of its garden adjoining the field at its east side. To the north of the field is woodland with residential properties adjoining to the south-east and southern boundary. Along the western boundary a stream runs north/south with a paddock adjoining. A narrow field entrance, shared with the adjoining paddock accesses out onto Walberton Lane to the south-west.

## **3. SCOPE OF TREE SURVEY**

- 3.1 The site area was defined as a red outline on a "Site Location Plan", drawing no SCR-MHA-00-XX-DR-A-0001 Rev. P1 produced by MH Architects. A copy is attached in Appendix 1 for reference purposes.
- 3.2 All trees and shrubs of 75mm diameter or more at 1.5m above ground level were included in the survey. This included trees immediately adjacent to the site.
- 3.3 For the offsite trees estimates of location, dimensions and condition had to be made.

## **4. DATA COLLECTION**

- 4.1 All trees were inspected from the ground and no climbing or specialist investigations were undertaken. Only those trees within the site boundary could be basally inspected, with the structural integrity of the trees located outside the site unconfirmed. Each tree was inspected to the requirements of Section 4.4 of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations".
- 4.2 The tree survey followed the numbered sequence from T1 to T28 inclusive. Tree numbers, together with BS recommended colour coding of condition, have been added to the Tree Constraints Plan, our drawing no. J53.76/01 in Appendix 3. This drawing also includes crown spreads based on four compass points and BS calculated root protection areas.

- 4.3 The following categories of information were obtained for each tree. Separate detailed tree survey sheets are attached in Appendix 2, together with comprehensive explanatory sheets which cover the details of the categories listed below.

- (1) Tree reference number
- (2) Species
- (3) Height in metres
- (4) Stem count
- (5) Stem diameter or equivalent in millimetres
- (6) Branch spread in metres
- (7) Age class
- (8) Height of crown clearance in metres
- (9) Physiological condition
- (10) Estimated remaining contribution in years
- (11) Category grading
- (12) Structural condition
- (13) Preliminary management recommendations

- 4.4 Within the assessment of physiological condition and remaining contribution, a visual inspection of each tree was undertaken to assess the crown and stem for any weak structures, deadwood, hollows, forks or other defects that might affect its stability and safety. The base of each tree was also visually inspected, together with tapping and probing, to search for signs of root lifting, bark death or decay. Where stems were heavily ivy clad, no full assessment of structural integrity could be undertaken. Clearance of the ivy would be necessary for confirmation of tree condition.

## **5. RISK ASSESSMENT - INFORMATIVES**

- 5.1 Although the potential risk to someone passing beneath a tree when the tree or part of it fails is relatively remote, the risk is present. This increases significantly in areas of consistent and regular usage on a year round basis, such as footpaths, gardens and roadways. Where static structures exist, the risks become constant and an assessment is made as to whether complete or partial failure of a tree could potentially cause physical damage to such structures.
- 5.2 Within the scope of any tree survey it is a fact that not all risks of stem or crown failure can be covered, particularly in relation to freak occurrences of weather when even healthy trees can suffer stem snap or windblow. There is also a well known propensity for mature trees to occasionally shed limbs for no discernible reason, even on calm days. Although relatively rare, limbs may occasionally be shed and this should be acknowledged as a risk that cannot entirely be mitigated.

## **6. RESULTS OF TREE INSPECTIONS**

- 6.1 A total of 28 individual trees and groups were inspected, ranging from young hedge planting and self seeded Maple of less than 15 years of age to mature Oaks of upto 200 years of age.
- 6.2 All of the trees are located around the peripheries of the site or in adjoining land ownership. Most of the trees could not be fully inspected due to them being offsite or surrounded in dense brambles/blackthorn scrub, of which dense patches are present around much of the boundary of the site.

- 6.3 A number of the mature trees were noted to have dieback, deadwood or structural defects indicating short safe lifespans. Any change of use of the field would require these trees to undergo correctional safety works or felling to remove potential hazards.
- 6.4 Of the trees inspected, the following is a breakdown of the various numbers of trees and groups in each BS category.

| BS Category | Tree No.                                                      | Sub Total |
|-------------|---------------------------------------------------------------|-----------|
| A           | 20, 24                                                        | 2         |
| B           | 1, 9, 18, G25, 27, 28                                         | 6         |
| C           | G2, 3, 4, 5, 6, 8, G10, 11, 13, G14, 15, 19, 21, G22, G23, 26 | 16        |
| U           | 7, 12, 16, 17                                                 | 4         |
|             | <b>TOTAL</b>                                                  | <b>28</b> |

6.5 **Interpretation of table**

- Category A** Retention most desirable. Of high quality and value and in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
- Category B** Retention desirable. Of moderate quality and value and in such a condition as to make a significant contribution (a minimum of 20 years is suggested).
- Category C** Could be retained – of low quality and value. Poor crown form, heavily asymmetric, large numbers of similar species/size. Currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested) or young trees with a stem diameter below 150mm.
- Category U** Trees for removal. Dead/dying/dangerous trees due to structural defects, fungal decay or root plate uplift. Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

**7. BS CALCULATED ROOT PROTECTION AREAS (RPAs)**

- 7.1 To provide an indication of the critical areas of root plate necessary for tree survival and longevity, BS 5837:2012 requires the calculation of RPAs for trees in the BS Categories A, B and C. Calculations are not made for Category U trees which will require removal on safety grounds within 10 years.
- 7.2 The table in Appendix 4 has been calculated using the measured stem diameters and the formula as described in Section 4.6 in BS 5837:2012. These are represented as basic circles on the Tree Constraints Plan. Where buildings, walls, services and hard surfacing exist within the indicated RPAs it is likely that the architecture of root systems will have been affected. Foundations to walls and buildings can completely obstruct root development, depending on their depth and the nature of the underlying soils. In the absence of detailed site investigations the indicated RPA circles should be used for guidance only within any development proposals.

## ARBORICULTURAL IMPLICATIONS ASSESSMENT

### 8. DEVELOPMENT PROPOSALS

- 8.1 The proposals are for the construction of nine detached residential units with garaging, parking and gardens, utilising an existing access point onto West Walberton Lane which will be improved to meet required standards. Details of the proposals will have been submitted by MH Architects and others.
- 8.2 The supplied "Proposed Site Layout", drawing no. SCR-MHA-00-XX-DR-A-0004 Rev P2, produced by MH Architects has been used as the base for the Broad Oak Tree Consultants Ltd. Tree Protection Plan, drawing no. J53.76/02 Rev A in Appendix 5. This indicates trees for removal and measures to protect retained trees in accordance with BS5837:2012 requirements.

### 9. TREES FOR REMOVAL

- 9.1 Based on the supplied layout proposals the following trees would require removal.

| Tree No. | Species     | BS Category | Comments                           |
|----------|-------------|-------------|------------------------------------|
| T19      | Field Maple | C           | Overgrown hedge element.           |
| T21      | Field Maple | C           | Self seeded suppressed small tree. |

- 9.2 Both of the above trees are BS category C and as such should not represent a constraint to the proposals, according to BS5837:2012. All other trees are retained and visual amenity impacts will be negligible.
- 9.3 The two trees for removal for development are indicated as such with blue dashed crown outlines on the Tree Protection Plan.

### 10. POTENTIAL IMPACTS OF PROPOSALS ON RETAINED TREES

- 10.1 The design of the site layout has been undertaken with the benefit of tree constraints information and potential conflicts have been addressed by design where practical. As such there is only one RPA overlap with a proposed house, unit 9, with the offsite Oak T24. The building overlap represents circa 32m<sup>2</sup> of a total RPA of circa 452m<sup>2</sup>, or approximately 7% of the total. This does not represent a significant proportion of the rooting area likely to cause any long term harm to the tree.
- 10.2 To reduce the level of potential disturbance a piled foundation system could be applied or if strip footings are necessary once site investigations have been completed, hand tool excavation of the foundation trenches within the upper 1m of soil within the RPA. This would avoid potential root tearing associated with bucket excavation.
- 10.3 The parking area and path/patio can be formed utilising a minimal dig design with only the dense grass sward removed by hand tool excavation and levels slightly built up to avoid root disturbance.
- 10.4 Although some root disturbance will occur it has to be noted that as a Third Party tree the roots are technically trespassing within the site and the applicants do not have to have due regard to protecting them. However, all reasonable measures are proposed within the layout design to avoid any excessive damage.

- 10.5 The proposed access point onto West Walberton Lane utilises an existing shared vehicle access to the proposed development site and an adjoining paddock. This has previously been utilised over many years by tractors which will have influenced rooting presence from the large Oak, T20.
- 10.6 To avoid excessive damage a minimal excavation, porous drive design will be necessary. This will utilise a cellular confinement system to reduce the build up level and provide a load spreading core. Such a design will accord with the principles of Arboricultural Practice Note 12 “Through the Trees to Development” and section 7.4 “Permanent hard surfacing within the RPA” of BS5837:2012.
- 10.7 An example of a cross section and construction methodology is included in Appendix 6. The specifics of the design could be required in a response to a specifically worded precommencement condition attached to a Grant of Consent.
- 10.8 No other potential impacts arise with the design layout and on/offsite trees.

## **11. TREES AND SHADE**

- 11.1 For units 8 and 9 there is the potential for shading by trees T24 and G25 (all Oaks) to occur during summer months on sunny days. However, any such shading would be limited in extent and does not necessarily represent a negative factor. The units are presumably designed for families and the medical benefits of keeping children in particular out of the sun during the hottest periods of the day is well documented. Tree shade on hot, sunny days would help cool and protect children, pets and/or elderly relatives with some welcome relief from midday/early afternoon sun. Direct sunlight will be available am and later pm and on cloudy days, more the norm for Britain, diffuse light will be available everywhere.
- 11.2 During later autumn/winter and spring the Oaks will have no leaves on and only dappled branch shade would arise on sunny days.
- 11.3 As such tree related shading to units 8 and 9 is not considered a negative factor to the scheme and should not represent an arboricultural objection to the proposals.

## **12. TREE PROTECTION MEASURES – FENCING**

### **12.1 *Location of fencing***

- 12.1.1 The Tree Protection Plan indicates the proposed location of protective fencing based on the calculated tree protection areas and space available.

### **12.2 *Design of fencing***

- 12.2.1 The protective fencing is to be constructed of scaffold uprights driven into the ground to a minimum depth of 0.6m and at no greater than 3m spacing. Uprights to be braced with angled scaffold poles and anchors. On to the uprights weldmesh panels such as “Heras” or a similar product will be securely mounted with all weather notices attached to every 5th panel reading “Keep Out – Protected Area”. The fencing will form enclosed areas to which no access will be allowed. This design of fencing is considered appropriate to the site and scale of development proposed.
- 12.2.2 Examples of the fencing specification and signage required are included in Appendix 7.

### **12.3 *Timing of fencing***

- 12.3.1 Protective fencing is to be erected prior to commencement of site works and remain in place until completion of construction. The location and suitability of the fencing can be confirmed to the local authority by an arboricultural consultant prior to commencement of construction.

### **12.4 *Additional precautions***

- 12.4.1 Potentially injurious materials such as fuels, oils, chemicals and cement will be stored at least 20m from any stem, or in a bunded storage vessel. No fires will be lit within 5m of the drip line of any retained tree. No level changes will occur, either raising or lowering within the protected areas. A list of these additional precautions are included on the Tree Protection Plan.

## **13. TREE PROTECTION MEASURES – GROUND PROTECTION**

- 13.1 Installation of the ground protection measures should take place at the same time as the protective fencing and remain in place until completion of construction.
- 13.2 In areas within root protection zones where access around the new building footprints will be required during construction, specific ground protection measures will be required. For machinery access these should comprise interlocking, specifically designed load bearing temporary roadway plates, commonly made of steel or specialised plastics. They will minimise any risk of compaction whilst providing a running platform for machinery.
- 13.3 Where foot access only is required, ground protection measures should comprise a base layer of geotextile, over which 100mm of woodchip will be laid, topped by side butting scaffold boards or non-slip surfaced minimum 20mm thick plywood or other man made boards.

## **14. SITE OPERATIONS AND MATERIALS STORAGE**

- 14.1 Details of site zoning cannot be specified by an Arboriculturalist as these are commonly determined by contractors on the basis of Health & Safety Assessments. However, the robust protective fencing will define the remaining site space available for storage and operations.
- 14.2 The extensive space available in the gardens of units 1 and 2 would provide ideal space for a site compound without placing undue pressure on protected areas.

## **15. SERVICE/DRAINAGE/SOAKAWAYS**

- 15.1 Any services, drainage runs and soakaways are to be kept outside indicated root protection areas wherever possible. Where excavation is necessary within tree RPAs, these should be undertaken by hand or thrust bored and to the requirements of NJUG Volume 4 "Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

## **16. ARBORICULTURAL METHOD STATEMENT**

- 16.1 Production of an Arboricultural Method Statement at this stage is considered inappropriate until the principles of the proposals and the measures to protect the trees have been accepted by the Council's Tree Officer. A detailed Arboricultural Method Statement could then be produced in response to a specific pre-commencement condition.
- 16.2 Alternatively reference could be made to the Tree Protection Plan in a specifically worded condition as the principle components for an Arboricultural Method Statement covering tree protection and construction methodologies are included on the Tree Protection Plan.

## **17. SUMMARY**

- 17.1 The proposed nine unit residential development will require the removal of two BS category C Field Maples. These are of no significance to the setting of the site or its publicly visible amenity value.
- 17.2 A load bearing/spreading porous access drive will be constructed to minimise disturbance to a roadside Oak. The design will comply with current guidance and can be the subject of a precommencement condition.
- 17.3 The proposed houses only overlap with the outer RPA of one offsite Oak tree and proposals to minimise any impacts on roots are put forward in line with industry best practice.
- 17.4 Robust tree protection measures are proposed to BS5837:2012 requirements to ensure that on and offsite trees are not adversely affected by the proposals.

Tim Laddiman  
Chartered Arboriculturist  
Broad Oak Tree Consultants Ltd.

# APPENDIX 1



# Development at Sunny Corner Copse Lane, Walberton, West Sussex, BN18 0QH for Mr & Mrs Holden

Drawing title

Site Location Plan

| Drawn            | Date                    | Checked | Date | Scale at A4 |
|------------------|-------------------------|---------|------|-------------|
| CJP              | Feb 17                  |         |      | 1:1250      |
| Job No.          | Drawing No.             | Rev.    |      |             |
| 17-025           | SCR-MHA-00-XX-DR-A-0001 | P1      |      |             |
| Purpose of issue |                         |         |      |             |
| PRELIMINARY      |                         |         |      |             |

Ground Floor Elevation of Building  
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 ARCHITECTS

# APPENDIX 2

## TREE SURVEY EXPLANATORY SHEET

|                                               |                                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Height</b>                                 | in metres (estimated where ground uneven or access restricted).                                                                                                                                                           |
| <b>Stem count</b>                             | number of stems                                                                                                                                                                                                           |
| <b>Stem diameter</b>                          | in mm. at 1.5m. above ground level.                                                                                                                                                                                       |
| <b>Branch spread</b>                          | radial spread in metres at four main compass points (estimated where no access).                                                                                                                                          |
| <b>Age class</b>                              | Young - Y<br>Middle aged - MA<br>Mature - M<br>Over mature - OM<br>Veteran - V                                                                                                                                            |
| <b>Height of crown clearance</b>              | in metres. Normally range of heights of outer branches above ground level, e.g. 2-4m.                                                                                                                                     |
| <b>Physiological condition</b>                | Good, Fair, Poor, Dead, Variable                                                                                                                                                                                          |
| <b>Estimated remaining contribution</b>       | in years<br>e.g. less than 10, 10-20, 20-40, 40+                                                                                                                                                                          |
| <b>Category grading</b>                       | see attached sheet                                                                                                                                                                                                        |
| <b>Structural condition</b>                   | comment on presence of defects, decay, crown form, past management, deadwood, other features worthy of note.<br>N.B. If trees are ivy clad, no full structural assessment will have been possible.                        |
| <b>Preliminary management recommendations</b> | requirements of further investigations, works necessary to alleviate potential hazards based on current setting and levels of access.<br>NB: Works that may be necessary in relation to development are not included here |

## CASCADE CHART FOR TREE QUALITY ASSESSMENT

| TREES FOR REMOVAL                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Category and definition                                                                                                                                                                                                        | Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       | Identification on plan |
| <b>Category U</b><br>Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management                       | <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 unviable after removal of other R category trees (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality</li></ul> <p>NOTE   Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree.)</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       | DARK RED               |
| TREES TO BE CONSIDERED FOR RETENTION                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       |                        |
| Category and definition                                                                                                                                                                                                        | Criteria - Subcategories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       | Identification on plan |
|                                                                                                                                                                                                                                | 1. Mainly arboricultural values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2. Mainly landscape values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3. Mainly cultural values, including conservation                                                                                     |                        |
| <b>Category A</b><br>Those of high quality and value: in such a condition as to be able to make a substantial construction (a minimum of 40 years is suggested)                                                                | Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)                                                                                                                                                                                                                                                           | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | LIGHT GREEN            |
| <b>Category B</b><br>Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)                                                                 | Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Trees present in numbers, usually as groups or woodland, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality | Trees with clearly identifiable conservation or other cultural benefits                                                               | MID BLUE               |
| <b>Category C</b><br>Those of low quality and value: currently in adequate condition to remain until new planting could be established ( a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm. | Trees not qualifying in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Trees present in groups or woodland, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.                                                                                                                                                                                                                                                                                                                                        | Trees with very limited conservation or other cultural benefits                                                                       | GREY                   |
| NOTE   Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                       |                        |

| Tree ref. no. | Species    | Height (m.) | Stem Count | Stem diameter or equivalent (mm.) | Branch spread (m.) |     |     |     | Age class | Ht. of crown clearance (m.) | Physiological condition | Estimated remaining contribution (years) | Category grading | Structural condition and Notes                                                                                                                                                         | Preliminary management recommendations |
|---------------|------------|-------------|------------|-----------------------------------|--------------------|-----|-----|-----|-----------|-----------------------------|-------------------------|------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|               |            |             |            |                                   | N                  | E   | S   | W   |           |                             |                         |                                          |                  |                                                                                                                                                                                        |                                        |
| 1             | Common Oak | 16          | 1          | c700                              | 5                  | 9   | 8   | 7   | M         | 0.5+                        | Unconfirmed             | 20-40                                    | B2               | Heavily ivy clad stem therefore no basal inspection. Deadwood.                                                                                                                         |                                        |
| G2            | Hazel      | <7          | Multi      | <250                              | <3                 | <5  | <5  | <2  | M         | 0+                          | Good                    | 40+                                      | C2               | Densely multi stemmed from ground level.                                                                                                                                               |                                        |
| 3             | Ash        | 16          | 1          | 550                               | 4                  | 5   | 5   | 4.5 | MA        | 1+                          | Fair                    | 10-20                                    | C1               | Slight lean to S. Kinked stem at 1.8m with old wound.                                                                                                                                  |                                        |
| 4             | Common Oak | 12          | 2          | 360                               | 3                  | 4.5 | 6   | 4   | Y         | 1+                          | Fair                    | 10-20                                    | C1               | Leaning S. Twin stemmed near ground level with weak union. E. stem suppressed.                                                                                                         |                                        |
| 5             | Ash        | 12          | 2          | 250                               | 3                  | 1.5 | 4   | 3   | Y         | 1+                          | Fair                    | 10-20                                    | C1               | Twin stemmed from ground level. Drawn up. Crowded. Part ivy clad.                                                                                                                      |                                        |
| 6             | Ash        | 13          | Multi      | 530                               | 4                  | 5   | 5.5 | 4   | MA        | 1.5+                        | Unconfirmed             | 10-20                                    | C1               | Multi stemmed near ground level. Deadwood. Ivy clad base therefore no basal inspection.                                                                                                |                                        |
| 7             | Ash        | 18          | 1          | c700                              | 4                  | 4   | 5.5 | 3   | M         | 5+                          | Poor                    | <10                                      | U                | Twin stemmed from under 2m. E. stem suppressed and heavily decayed with numerous woodpecker holes. Deadwood on W. stem. High crown. No basal inspection due to dense brambles and ivy, |                                        |

| Tree ref. no. | Species                    | Height (m.) | Stem Count | Stem diameter or equivalent (mm.) | Branch spread (m.) |    |     |    | Age class | Ht. of crown clearance (m.) | Physiological condition | Estimated remaining contribution (years) | Category grading | Structural condition and Notes                                                                                                                    | Preliminary management recommendations |
|---------------|----------------------------|-------------|------------|-----------------------------------|--------------------|----|-----|----|-----------|-----------------------------|-------------------------|------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|               |                            |             |            |                                   | N                  | E  | S   | W  |           |                             |                         |                                          |                  |                                                                                                                                                   |                                        |
| 8             | Ash                        | 19          | 3          | c930                              | 3                  | 4  | 7.5 | 2  | M         | 6+                          | Unconfirmed             | 10-20                                    | C1               | High crown. Three stems near ground level. Large long limb off S. stem ascending to south. Deadwood. Part ivy clad therefore no basal inspection. |                                        |
| 9             | Common Oak                 | 15          | 1          | c900                              | 6                  | 5  | 6   | 8  | M         | 4+                          | Unconfirmed             | 20-40                                    | B2+3             | Heavily ivy clad therefore no basal inspection. Extensive deadwood and dieback.                                                                   | Deadwood crown.                        |
| G10           | Silver Birch               | <10         | 1/Multi    | <200                              | <3                 | <4 | <5  | <3 | Y         | 1+                          | Unconfirmed             | 40+                                      | C2               | Cluster of drawn up young stems.                                                                                                                  |                                        |
| 11            | Monterey Pine              | 18          | 1          | c650                              | 4                  | 5  | 8   | 6  | M         | 3.5+                        | Unconfirmed             | 10-20                                    | C1               | Located in adjoining land therefore no basal inspection. Slight lean to SW. Crown formed off long limbs. Fine deadwood and dieback.               |                                        |
| 12            | Monterey Pine              | 9           | 1          | c700                              | 0                  | 2  | 10  | 6  | M         | 0+                          | Poor                    | <10                                      | U                | Located in adjoining land therefore no basal inspection. Stem lean out to SW. Contorted stem curved down to ground level to SW.                   |                                        |
| 13            | Common Oak                 | 8           | 1          | c200                              | c1                 | 2  | 5   | 5  | Y         | 0+                          | Unconfirmed             | 40+                                      | C2               | Crowded. Located in adjoining land therefore no basal inspection.                                                                                 |                                        |
| G14           | Ash, Thorn, Horse Chestnut | <11         | 1/Multi    | <250                              | <4                 | <4 | <3  | <4 | VAR       | 0+                          | Variable                | 10-40+                                   | C2               | Overgrown hedging and self seeded trees on either side of ditch.                                                                                  |                                        |

| Tree ref. no. | Species     | Height (m.) | Stem Count | Stem diameter or equivalent (mm.) | Branch spread (m.) |   |    |    | Age class | Ht. of crown clearance (m.) | Physiological condition | Estimated remaining contribution (years) | Category grading | Structural condition and Notes                                                                                                                                                                  | Preliminary management recommendations |
|---------------|-------------|-------------|------------|-----------------------------------|--------------------|---|----|----|-----------|-----------------------------|-------------------------|------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|               |             |             |            |                                   | N                  | E | S  | W  |           |                             |                         |                                          |                  |                                                                                                                                                                                                 |                                        |
| 15            | Ash         | 19          | 1          | c600                              | 8                  | 7 | 4  | c3 | M         | 1+                          | Unconfirmed             | 10-20                                    | C1               | Ivy clad into canopy. Twin stemmed at 2.5m-3m. Crowded to SW.                                                                                                                                   |                                        |
| 16            | Common Oak  | 13          | 1          | c900                              | 7                  | 7 | 7  | c7 | M         | 2+                          | Poor                    | <10                                      | U                | Large <i>Ganoderma</i> fruiting body at base to S. Located on far side of stream therefore no basal inspection. Roots aligned along stream. Twin stemmed at circa 2.5m. Crowded to NE. Dieback. |                                        |
| 17            | Common Oak  | 10          | 1          | c400                              | 4                  | 7 | 3  | c7 | Y         | 2+                          | Poor                    | <10                                      | U                | Located on W. side of stream. Virtually dead. No access therefore no basal inspection.                                                                                                          |                                        |
| 18            | Common Oak  | 10          | 1          | c300                              | 2.5                | 4 | 5  | 5  | Y         | 2+                          | Unconfirmed             | 40+                                      | B2               | Located on W. side of stream. No access therefore no basal inspection.                                                                                                                          |                                        |
| 19            | Field Maple | 10          | 1          | c400                              | c3                 | 4 | 4  | 5  | MA        | 2+                          | Unconfirmed             | 20-40                                    | C2               | Ivy clad. Kinked stem at 2m. Multi stemmed at 4m. Crown lifted to S. and E.                                                                                                                     |                                        |
| 20            | Common Oak  | 16          | 2          | c1400                             | 10                 | 7 | 11 | 9  | M         | 2.5+                        | Unconfirmed             | 40+                                      | A2               | Three stems from under 2m. Ivy clad therefore no basal inspection. Smaller stem suppressed and leans out to S. Ownership unclear.                                                               |                                        |

| Tree ref. no. | Species            | Height (m.) | Stem Count | Stem diameter or equivalent (mm.) | Branch spread (m.) |      |      |      | Age class | Ht. of crown clearance (m.) | Physiological condition | Estimated remaining contribution (years) | Category grading | Structural condition and Notes                                                              | Preliminary management recommendations |
|---------------|--------------------|-------------|------------|-----------------------------------|--------------------|------|------|------|-----------|-----------------------------|-------------------------|------------------------------------------|------------------|---------------------------------------------------------------------------------------------|----------------------------------------|
|               |                    |             |            |                                   | N                  | E    | S    | W    |           |                             |                         |                                          |                  |                                                                                             |                                        |
| 21            | Field Maple        | 7           | 1          | c120                              | 1.5                | 2.5  | 3    | 1.5  | Y         | 2+                          | Unconfirmed             | 10-20                                    | C1               | Heavily ivy clad. Suppressed.                                                               |                                        |
| G22           | Cherry Laurel      | <3.5        | Multi      | <200                              | <1.5               | <1.5 | <1.5 | <1.5 | MA        | 0+                          | Good                    | 40+                                      | C2               | Maintained hedge.                                                                           |                                        |
| G23           | Field Maple, Thorn | <6          | 1/Multi    | <100                              | <3                 | <2   | <2   | <2   | Y         | 0+                          | Good                    | 40+                                      | C2               | Overgrown hedge planted in last ten years or so.                                            |                                        |
| 24            | Common Oak         | 21          | 1          | c1000                             | 6                  | 8    | c8   | 4    | M         | 1.5+                        | Unconfirmed             | 40+                                      | A2               | Located in adjoining garden therefore no basal inspection. Ivy clad.                        |                                        |
| G25           | 3no. Common Oak    | <16         | 1          | <550                              | <8                 | <8   | <7   | <8   | MA        | 1+                          | Unconfirmed             | 40+                                      | B2               | Crowded group. Ivy clad. Located in adjoining garden therefore no basal inspection.         |                                        |
| 26            | Elm                | 7           | Multi      | c400                              | 4.5                | 5.5  | c4   | 5    | Y         | 3+                          | Unconfirmed             | 20-40                                    | C2               | Multi stemmed near ground level. Located in adjoining garden therefore no basal inspection. |                                        |
| 27            | Maple              | 9           | 1          | c350                              | 5                  | 5    | 5    | 4    | MA        | 3+                          | Unconfirmed             | 20-40                                    | B2               | Ivy clad. Crown raised in past. Located in adjoining garden therefore no basal inspection.  |                                        |
| 28            | Unconfirmed        | 11          | 1          | c450                              | 5                  | 4    | 4    | 3    | MA        | 3+                          | Unconfirmed             | 10-20                                    | B2               | Located in adjoining garden therefore no basal inspection.                                  |                                        |

# APPENDIX 3

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LAND ADJOINING  
SUNNY CORNER  
COPSE LANE  
WALBERTON  
ARUNDEL  
BN18 0GH

TREE CONSTRAINTS PLAN

T1 – 128 Tree numbers

BS Category of Condition

T24 BS Condition A

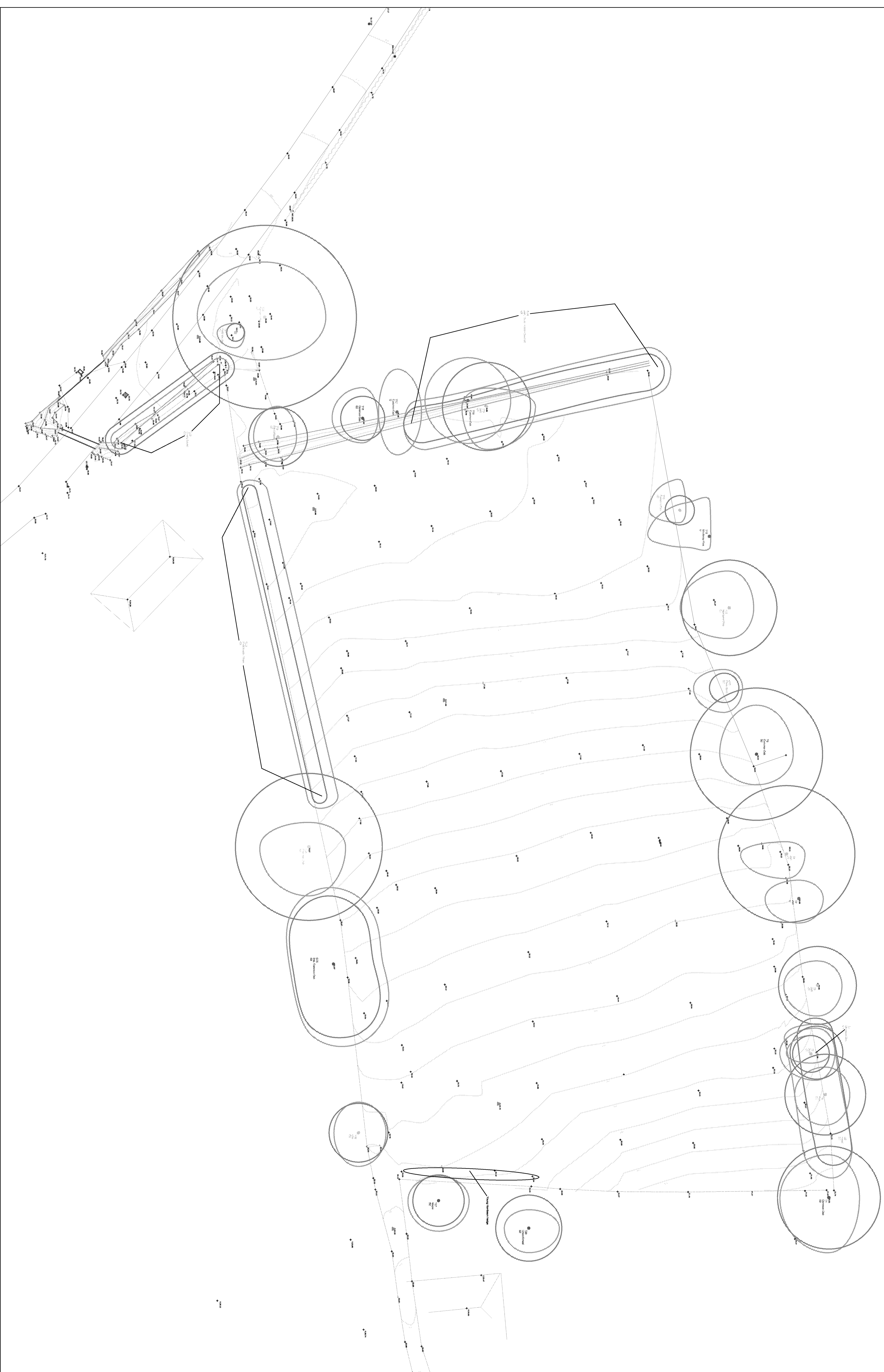
T1 BS Condition B

T3 BS Condition C

T7 BS Condition U

BS Calculated root protection areas

The root protection areas have been calculated using the formulae as described in Section 4.6 in BS5837:2012. These are the Tree Constraints Plan. Where buildings, walls, services and hard landscaping are shown on the RPAe, it is likely that the architecture of root systems will completely obstruct root on their depth, and the nature of the underlying soils. In the absence of evidence to the contrary, the indicated RPAe should be used for any redevelopment proposals.



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Added to by: NL  
13/04/2017

# APPENDIX 4

TABLE OF BS CALCULATED ROOT PROTECTION AREAS (RPAs)  
AT  
LAND ADJOINING SUNNY CORNER, COPSE LANE,  
WALBERTON, ARUNDEL, WEST SUSSEX, BN18 0GH

| Tree no. | Species                    | BS Category | Stem diameter or calculated equivalent (mm.) | BS calc. radial equiv. root protection area (m.) | BS calc. total RPA (m <sup>2</sup> ) |
|----------|----------------------------|-------------|----------------------------------------------|--------------------------------------------------|--------------------------------------|
| 1        | Common Oak                 | B2          | c.700                                        | c.8.4                                            | c.222                                |
| G2       | Hazel                      | C2          | <250                                         | <3                                               | <28                                  |
| 3        | Ash                        | C1          | 550                                          | 6.6                                              | 137                                  |
| 4        | Common Oak                 | C1          | 360                                          | 4.3                                              | 58                                   |
| 5        | Ash                        | C1          | 250                                          | 3                                                | 28                                   |
| 6        | Ash                        | C1          | 530                                          | 6.4                                              | 129                                  |
| 7        | Ash                        | U           | -                                            | -                                                | -                                    |
| 8        | Ash                        | C1          | c.930                                        | c.11.2                                           | c.394                                |
| 9        | Common Oak                 | B2+3        | c.900                                        | c.10.8                                           | c.366                                |
| G10      | Silver Birch               | C2          | <200                                         | <2.4                                             | <18                                  |
| 11       | Monterey Pine              | C1          | c.650                                        | c.7.8                                            | c.191                                |
| 12       | Monterey Pine              | U           | -                                            | -                                                | -                                    |
| 13       | Common Oak                 | C2          | c.200                                        | c.2.4                                            | c.18                                 |
| G14      | Ash, Thorn, Horse Chestnut | C2          | <250                                         | <3                                               | <28                                  |
| 15       | Ash                        | C1          | c.600                                        | c.7.2                                            | c.163                                |
| 16       | Common Oak                 | U           | -                                            | -                                                | -                                    |
| 17       | Common Oak                 | U           | -                                            | -                                                | -                                    |
| 18       | Common Oak                 | B2          | c.300                                        | c.3.6                                            | c.41                                 |
| 19       | Field Maple                | C2          | c.400                                        | c.4.8                                            | c.72                                 |
| 20       | Common Oak                 | A2          | c.1400                                       | 15*                                              | 707                                  |
| 21       | Field Maple                | C1          | c.120                                        | c.1.4                                            | c.6                                  |
| G22      | Cherry Laurel              | C2          | <200                                         | <2.4                                             | <18                                  |
| G23      | Field Maple, Thorn         | C2          | <100                                         | <1.2                                             | <5                                   |
| 24       | Common Oak                 | A2          | c.1000                                       | c.12                                             | c.452                                |
| G25      | 3no. Common Oak            | B2          | <550                                         | <6.6                                             | <137                                 |
| 26       | Elm                        | C2          | c.400                                        | c.4.8                                            | c.72                                 |
| 27       | Maple                      | B2          | c.350                                        | c.4.2                                            | c.55                                 |
| 28       | Unconfirmed                | B2          | c.450                                        | c.5.4                                            | c.92                                 |

# APPENDIX 5

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LAND ADJOINING  
SUNNY CORNER  
COPSE LANE  
WALBERTON  
ARUNDEL  
BN18 0GH

TREE PROTECTION PLAN

T1 – T28 Tree numbers

BS Category of Condition

T24 BS Condition A

T1 BS Condition B

T3 BS Condition C

T7 BS Condition U

Dead crown spread

BS Calculated root protection areas

Trees to be removed for development

Protective fencing location

Ground protection

TREE PROTECTION INFORMATION

Protective measures to be installed at locations specified in the schedule of works, in accordance with BS5837:2012. The schedule of works shall include the following: –

- Excavations, soil/lift stripping, raising/lowering of existing levels or alterations to the existing conditions of any other description.
- Location of temporary structures, vehicles, storage or any other services.
- No use, movement or parking of any machinery or vehicles of any description.
- Additionally, no trees shall be felled or removed, nor shall any trees or the centre line of any hedgerow to be retained.
- All services to be installed to the satisfaction of the Planning, Inspection and Maintenance of Utility, appropriate within retained trees root protection zones to either be installed or replaced by the Arboricultural Consultant.

Ground protection measures to be installed at locations specified in the schedule of works, in accordance with BS5837:2012. The schedule of works shall include the following: –

- Excavations, soil/lift stripping, raising/lowering of existing levels or alterations to the existing conditions of any other description.
- Location of temporary structures, vehicles, storage or any other services.
- No use, movement or parking of any machinery or vehicles of any description.
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- Location of temporary structures, vehicles, storage or any other services.
- No use, movement or parking of any machinery or vehicles of any description.
- Additionally, no trees shall be felled or removed, nor shall any trees or the centre line of any hedgerow to be retained.
- All services to be installed to the satisfaction of the Planning, Inspection and Maintenance of Utility, appropriate within retained trees root protection zones to either be installed or replaced by the Arboricultural Consultant.

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25/09/2017

# APPENDIX 6

## **ARBORICULTURAL METHOD STATEMENT FOR THE CONSTRUCTION OF“NO DIG” LOAD BEARING SURFACES WITHIN TREE ROOT PROTECTION AREAS**

### **GENERAL**

This document sets out the methodology for the construction of load bearing surfaces within tree root protection areas where excavation is not to occur, in order to minimise damage to underlying tree roots.

The following information is taken from manufacturers supplied information, relevant sections of BS5837:2012 “Trees in Relation to Design, Demolition and Construction - Recommendations”. and Arboricultural Practice Note 12 “Through the Trees to Development”.

### **SITE PREPARATION AND CONSTRUCTION**

- Loose organic matter and/or turf to be removed using hand tools only.
- Lay directly onto existing ground level a geotextile layer, such as G4 Geotextile produced by Cooper Clarke Group Ltd., covering the area of ground within the calculated root protection area.
- Expand out and pin in place a 150mm depth three dimensional cellular confinement system, such as Geoweb or similar product.
- Infill expanded cells working outwards from existing surfacing. Infill materials to comprise washed angular stone of 30mm-50mm size.
- Peg and board edges of construction with appropriate dimension treated softwood or kerbing with haunching set on the existing ground level.
- Lay porous wearing layer onto infilled cells, working from the existing surfacing.
- Regrade from finished levels towards tree stems using urban tree soil or good quality top soil moved into position by wheelbarrow only on bare ground or to be tipped by dumper access across the finished surfacing only.
- No machinery is to pass over the unprotected ground. Machinery can only utilise the drive once the cells have been filled.

The attached drawing provides a visual reference to the proposed make up of the “no dig” construction.

Washed angular stone fill 30-50mm

Porous wearing course

300mm return on geotextile

Existing ground level

Three dimensional cellular confinement system (e.g. geoweb)

Free air and water exchange

1:3 gradient to existing ground level

Regrade levels using urban free soil

Treated softwood peg and edge board

Not to scale

# APPENDIX 7

# BS5837:2012: FENCING SPECIFICATIONS

Figure 2 Default specification for protective barrier

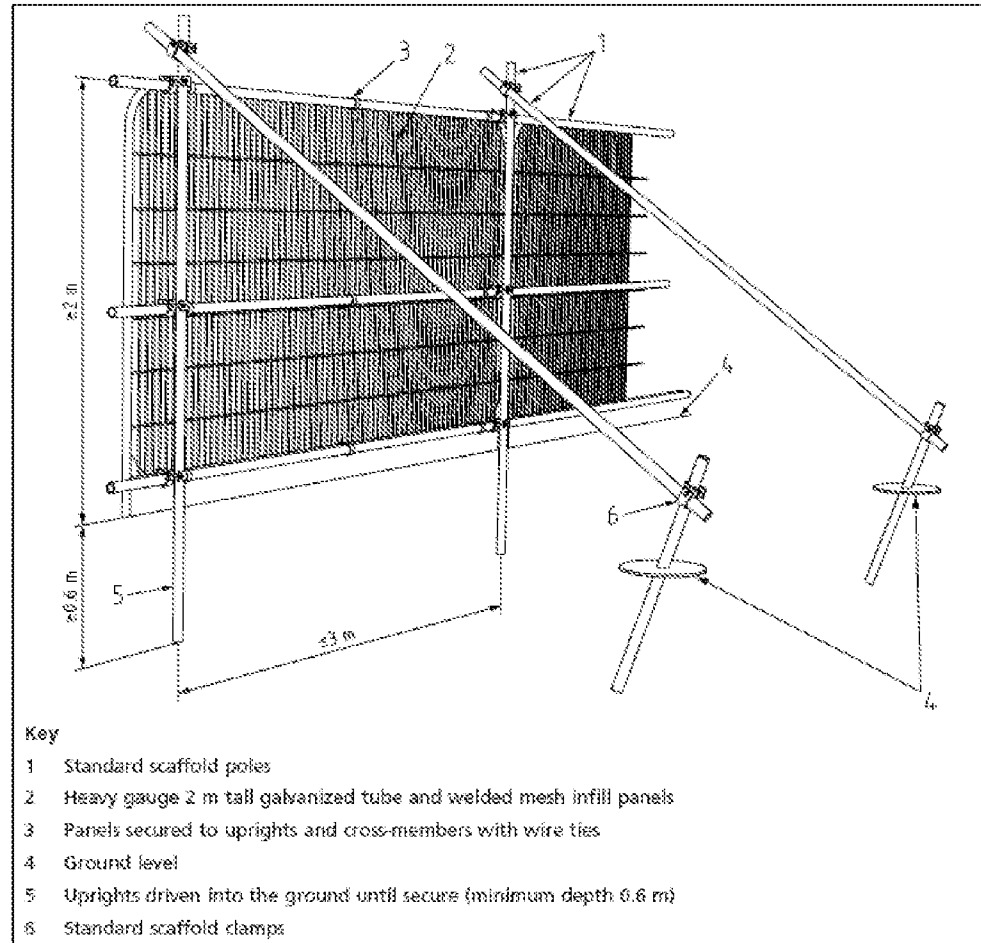
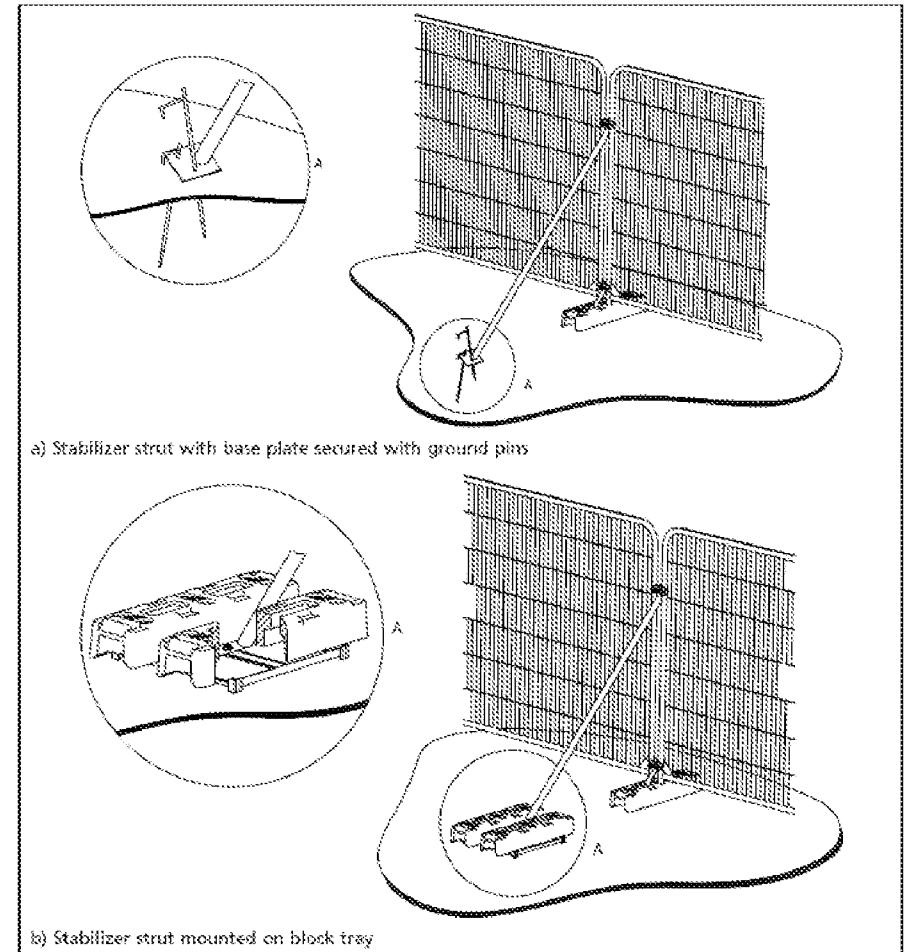


Figure 3 Examples of above-ground stabilizing systems



## EXAMPLE OF FENCING SIGNAGE

