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**YEW TREE AND GARDENS**

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**CLIENT: MR & MRS HARRISON.**  
**– LAND AT 8 HAMMOND DRIVE,**  
**READ, BURNLEY, LANCASHIRE**

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**ARBORICULTURAL METHOD STATEMENT**  
**FOR CONSTRUCTION OF TWO RESIDENTIAL DWELLINGS**

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## ARBORICULTURAL METHOD STATEMENT

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### 1. INTRODUCTION

#### A. OVERVIEW

1. This Method Statement is intended to ensure the successful protection and retention of trees during the creation of two detached residential dwellings located in the grounds of the existing dwelling at 8 Hammond Drive, Read.
2. The method statement should be used in conjunction with previously submitted Tree Report; reference Ian Tavendale 15/04/13. All tree references are taken from the above document.
3. The development is as illustrated in Appendix 1: Tree Protection Plan and as consented within the planning permission Ribble Valley 3/2013/0513.
4. All works detailed in this method statement are to be undertaken to current best practice and in line with recommendations contained in BS5837:2012 and BS3998:2010.

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#### B SITE DESCRIPTION

The current site layout is as follows:

1. The site consists of an area of maintained gardens, an area of unmaintained tree cover, areas of amenity tree / shrub stock, a single detached dwelling and associated structures and areas of vehicle access and parking.

#### C. CONSENTED DEVELOPMENT

1. The consented development is for the construction of two detached dwellings with new vehicle access route.
2. This document is to discharge conditions relating to the construction of the consented development.

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### 2. TREE PRESERVATION ORDERS AND CONSERVATION AREAS

#### A. SITE DESCRIPTION

1. The site is not located within a Conservation Area an on line check of the Ribble Valley Borough Council TPO list (24/06/16) does not indicate the presence of any active Tree Preservation Orders within the site.

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### 3. TIMETABLE

#### a. Overview

Prior to commencement of construction phase the following actions should take place to ensure protection of trees on site.

1. Site meeting between main contractor/architect and arboriculturalist. To discuss arboricultural issues relating to construction phase.
2. Tree work and tree removals prior to commencement of construction.
3. Erection of protective fencing at locations indicated in Appendix 1.
4. Construction Phase including specific working methods.
5. Landscaping
6. Project completion and removal of tree protection.

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### 4. TREE REMOVALS AND TREE WORKS

#### A. PROPOSED TREE REMOVALS

Tree removals are as detailed in Appendix 2: Tree Removals and as indicated in red on Appendix 1: Tree Protection Plan.

We have undertaken a site visit on 10/06/16 in order ascertain whether any trees have either failed or been removed between the initial tree survey and the present date, these are noted in Appendix 1.

#### B PROPOSED TREE WORK

A limited crown reduction of approximately 2 metres is required to provide improved clearance from T20 to the position of the dwelling.

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## 5. PROTECTIVE FENCING

1. Once erected all protective fencing will be regarded as sacrosanct and will remain in place until the completion of the construction phase. It shall not be removed, relocated or breached at any time without consultation with the project arboriculturalist.
2. Protective fencing will be constructed of robust barriers fit for the purpose of excluding construction traffic from root protection areas. Details of appropriate fencing types are included in Appendix 3.
3. Signs will be affixed to every third panel stating 'Tree Protection Area Keep Out'. See Appendix 4 for example of signage.
4. All fencing will be securely affixed to avoid movement of fencing during the construction phase.
5. For the sections marked on Appendix 1 fences will be constructed of site fencing of 'Heras' type which must be securely braced with additional measures to prevent movement of the fence during construction. Positions for protective fencing are indicated in purple on Appendix 1: Tree Protection Plan

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## 6. CONSTRUCTION PHASE

### A. PRINCIPLES TO AVOID DAMAGE TO TREES.

1. A position for Tree Protection Fencing is indicated on Appendix 1: Tree Protection Plan
2. An indicative list of recommended practices during construction phase is listed below:
3. Once installed tree protection must remain in place and be observed at all times.
4. No fires within 10m of the crown of any retained trees.
5. Soil levels in rooting areas to be retained with minimal level changes, no greater increases than 300mm from existing levels.
6. No cement mixing/washout to take place within 15m of any retained trees.
7. No chemicals, bitumen etc. to be stored within 10m of any retained trees.
8. Any spillage of fuel, chemicals or contaminated water occurring within 2m of the root protection areas to be reported to project supervisor.
9. A position for a materials storage area is indicated in Appendix1: Tree Protection Plan. Materials (in particular liquid or cement based products) should not be stored outside of this area.
10. No additional underground services have been indicated to us at this time but they may be safely routed to avoid rooting zones, if additional services require routing through the root zones of trees for retention then appropriate sub surface or hand trenching methods should be used and guidance sought prior to any works being undertaken. See BS3857:2012.

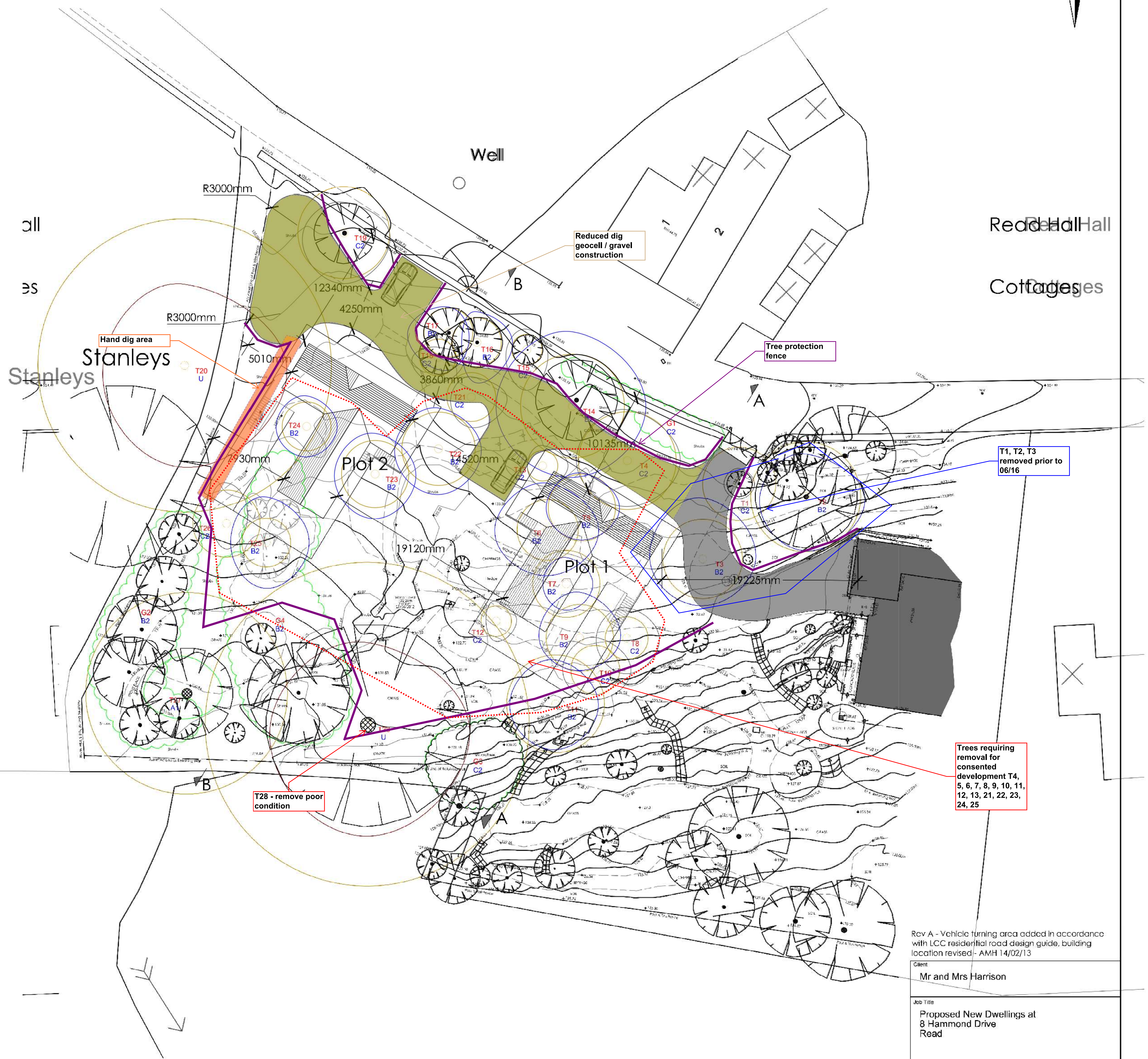
B. SPECIFIC WORKING METHODS.

FORMATION OF VEHICLE ACCESS IN RELATION TO RETAINED TREES

- Construction of the access / parking area to the North of the dwellings in the area shaded yellow should be constructed using the following methodology- Terram Geocell is used for this illustration and shown with Appendix 5. Product Data, similar products are available through other manufacturers and should be used in accordance with the relevant manufacturer guidelines.
  1. Installation of tree protection fence at location specified in Appendix 5
  2. Clearing of vegetation and upper horizon of topsoil to a maximum depth of 150mm.
  3. Surfacing of the access route should consist of porous material e.g. chippings/gravel. This Porous material should be used in conjunction with a surface mounted cellular containment system e.g. TERRAM geocell 250/150. This containment system will serve to reduce sub-surface compaction and movement of the gravel infill.  
See attached data sheet for detailed installation guide.
  4. We recommend that the edges be created using surface mounted wooden edging in the form of pre-treated landscaping poles or similar. This edging may be securely fastened in position with steel road pins or similar. Alternative edging must not require excavation of over 150 mm in depth.
  5. Edging will not necessarily be required for the initial construction phase nor will the installation of the final decorative gravel surface. The completion of these items may take place once the main construction phase has been finished to prevent wear / damage to edges or finishing layer from construction traffic.
  6. Construction of the access route should take place in a linear manner along the marked route thus avoiding a requirement for movement of materials within the rooting zones of retained trees. Once surfacing of the access route is completed then construction traffic shall use this route for access to commence construction of the dwelling.
  7. Tree protection fencing to be maintained in position through development phase

TREE REFERENCE T20, OFF SITE TREE (ORANGE SHADING APPENDIX 1)

1. Initial works within the area identified with orange shading in Appendix 1 shall at all times be by hand methods with no use of heavy plant and machinery.
2. Tree protection fencing should be in place prior to the commencement of any works.
3. The location of hand digging areas within the RPA should be clearly marked out on site to avoid unnecessary mechanical digging within the RPA.
4. Within the marked area there should be a hand surface layer removal followed by hand digging to a depth of 400mm to establish the presence of any significant root structures.
5. If roots over 25mm are encountered they should ideally be relocated to the outside of the excavated trench, if necessary by the enlargement of the excavated trench. These roots should be covered with moist topsoil. If relocation is not possible then they shall be pruned to a lateral root branch, pruning will use an appropriate hand tool i.e. bypass loppers or pruning saw. Any tools shall be disinfected prior to use for pruning.
6. Any roots below 25mm in diameter may be relocated to the outside edge of the excavation or if this is not possible then pruned back with disinfected secateurs.
7. On completion of the excavation we would recommend that the outer edge of the excavated line should be faced with an appropriate root barrier to prevent future damage to surfaces by root growth.



Proposed Site Plan

Rev A - Vehicle turning area added in accordance with LCC residential road design guide, building location revised - AMH 14/02/13

Client  
Mr and Mrs Harrison

Job Title  
Proposed New Dwellings at  
8 Hammond Drive  
Read

Drawing Title  
Existing and Proposed Site Plan

Tree Protection Plan

**Key**

- Tree location Cat A
- Tree location Cat B
- Tree location Cat C
- Tree location Cat U
- Road Protection Area
- Surveyed Canopy
- Tree Protection Screen
- Shadow extent midsummer
- Scale 1:200
- From Site Plan
- Supplied

**Note:**  
RPA only indicated for significant trees. Small garden trees and semi-mature specimens not indicated.

**Retention Categories:**  
As defined BS5837:2012

**RPA:**  
Protect from individual RPA sheets. Where applicable, other indicated.

**Project Title:**  
8 Hammond Drive, Read

**Date of Survey:**  
10/06/16 site visit

**Surveyor:**  
A. Wood

**Date File Created:**  
24/06/16

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Trees requiring removal for consented development T4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 21, 22, 23, 24, 25

T1, T2, T3 removed prior to 06/16

T28 - remove poor condition

Reduced dig geocell / gravel construction

Tree protection fence

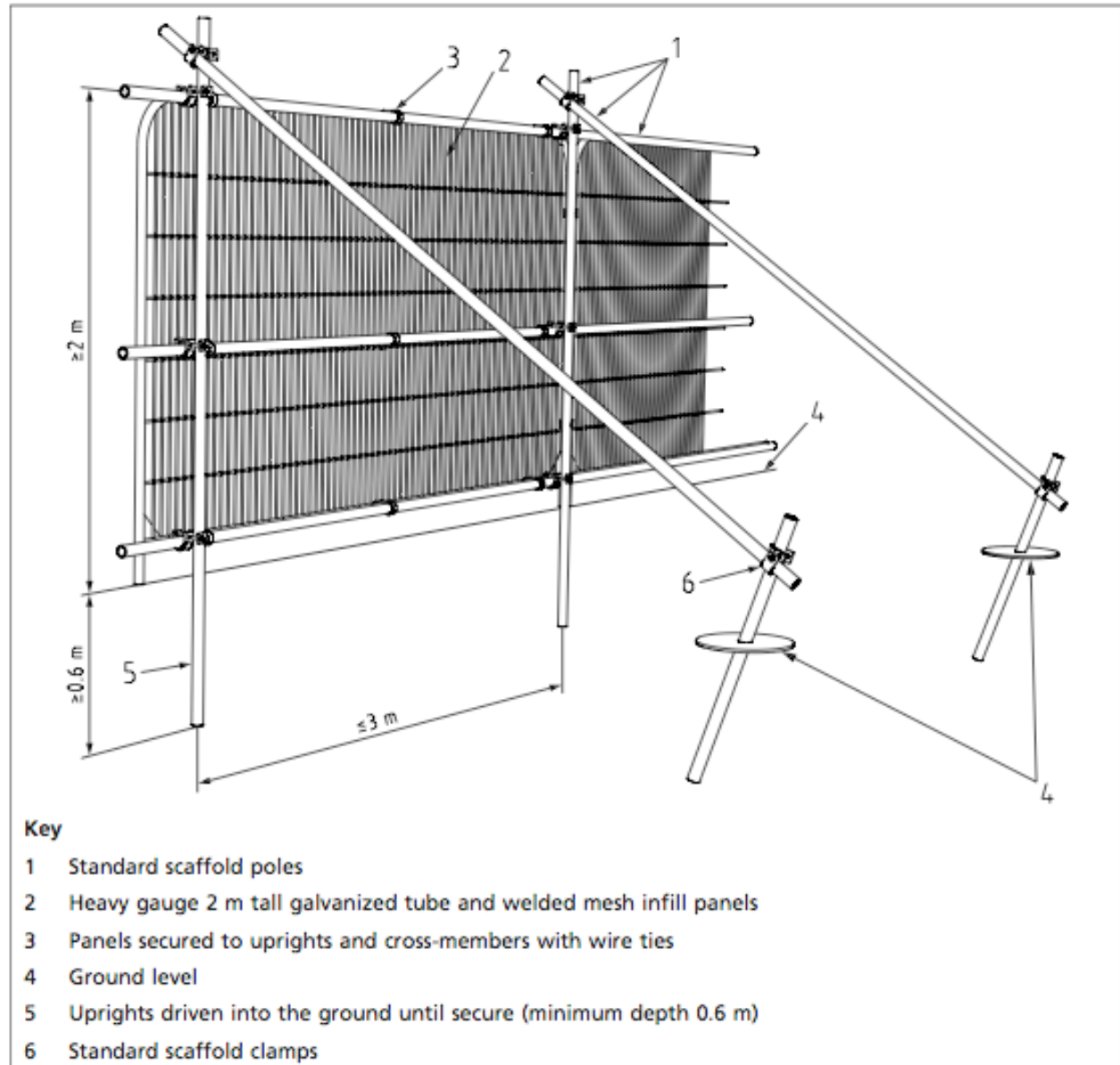
Hand dig area

| Type      | Name        | Works                     | Reason for removal                                                                                  | Work                    |
|-----------|-------------|---------------------------|-----------------------------------------------------------------------------------------------------|-------------------------|
| T4        | Pine        | Remove tree               | Formation of access route                                                                           | Fell and grub out stump |
| T13       | Acer        | Remove tree               | Formation of parking area                                                                           | Fell and grub out stump |
| T21       | Acer        | Remove tree               | Formation of access route                                                                           | Fell and grub out stump |
| T5        | Spruce      | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T6        | Birch       | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T7        | Spruce      | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T8        | Maple       | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T9        | Pine        | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T10       | Rowan       | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T11       | Spruce      | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T12       | Acer        | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T22       | Sorbus      | Remove tree               | Construction - Plot 2                                                                               | Fell and grub out stump |
| T23       | Alder       | Remove tree               | Construction - Plot 2                                                                               | Fell and grub out stump |
| T24       | Birch       | Remove tree               | Construction - Plot 1                                                                               | Fell and grub out stump |
| T278      | Beech       | Remove tree               | Unsuitable for retention                                                                            | Fell and stump grind    |
|           |             |                           |                                                                                                     |                         |
|           |             |                           |                                                                                                     |                         |
|           |             |                           |                                                                                                     |                         |
| Tree work |             | Location                  | Work                                                                                                | Future works            |
| T14       | Oak         | Adjacent new access route | Remove deadwood / pruning stubs                                                                     | Biennial inspection     |
| T15       | Magnolia    | Adjacent new access route | Remove clematis from crown                                                                          | Biennial inspection     |
| T16       | Rowan       | Adjacent new access route | Remove deadwood / crown thin                                                                        | Biennial inspection     |
| T17       | Rowan       | Adjacent new access route | Remove deadwood / crown thin                                                                        | Biennial inspection     |
| T18       | Acer        | Adjacent new access route | Crown clean / reduce by 1m                                                                          | Biennial inspection     |
| G1        | Mixed group | Adjacent new access route | Reduce / prune Laurels, thin group to allow development of individual plants - retain for screening | Regular maintenance     |
| G4        | Mixed group | Lower garden              | Thin out to produce better structure                                                                | Regular maintenance     |
| T20       | Beech       | Off site tree             | Reduce crown over sight by 2m to suitable lateral pruning points                                    | Biennial inspection     |

## Appendix 3: Protective Fencing

### Tree protective fencing

Figure 2 Default specification for protective barrier



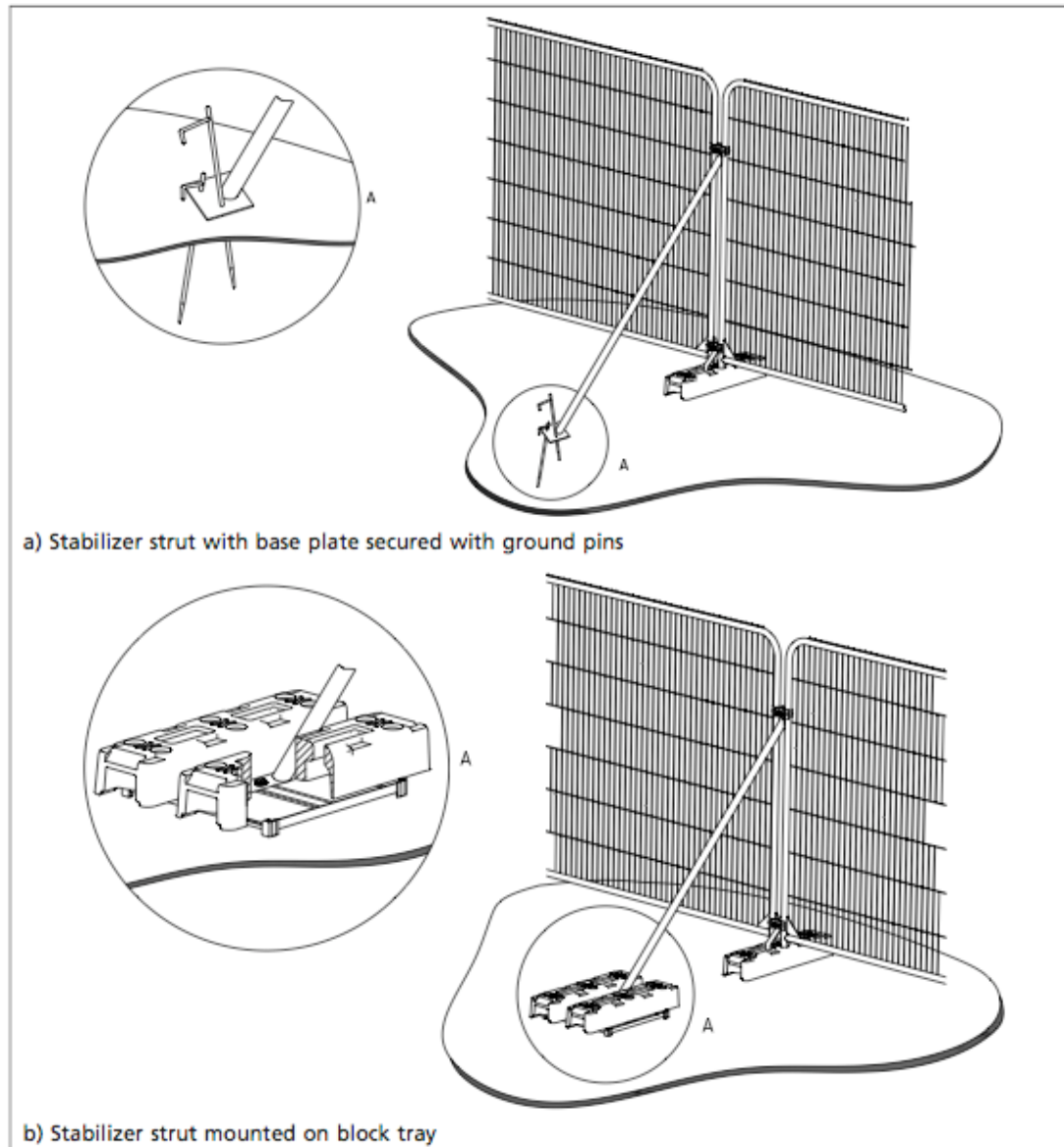
## Appendix 3: Protective Fencing

### Tree protective fencing

**BRITISH STANDARD**

**BS 5837:2012**

Figure 3 Examples of above-ground stabilizing systems





**TREE PROTECTION  
AREA**

**KEEP OUT!**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE  
AGREEMENT OF THE LOCAL AUTHORITY OR ARBORICULTURAL  
CONSULTANT**

## SPECIFICATION & INSTALLATION GUIDANCE



### TERRAM GEOCELL CONFINEMENT SYSTEM FOR TREE ROOT PROTECTION

Terram Geocell is a geocellular sub-base confinement system designed for the protection of tree roots where the construction of roads, car parks and access routes are required in the vicinity of trees and where Tree Preservation Orders (TPO) may be enforced. The structure confines and stabilises the sub-base stone ensuring that vehicle loads are dissipated, rutting and soil compaction is prevented and damage to tree roots is avoided. When installed as advised, Terram Geocell will also allow the continued passage and circulation of air, water and nutrients to tree roots to sustain a healthy growing environment as recommended by the following 2 documents:

- British Standard BS5837: 'Trees in Relation to Construction' (2005).
- Arboricultural Advisory and Information Service: Practice Note 1 – 'Driveways Close to Trees' (APN1)

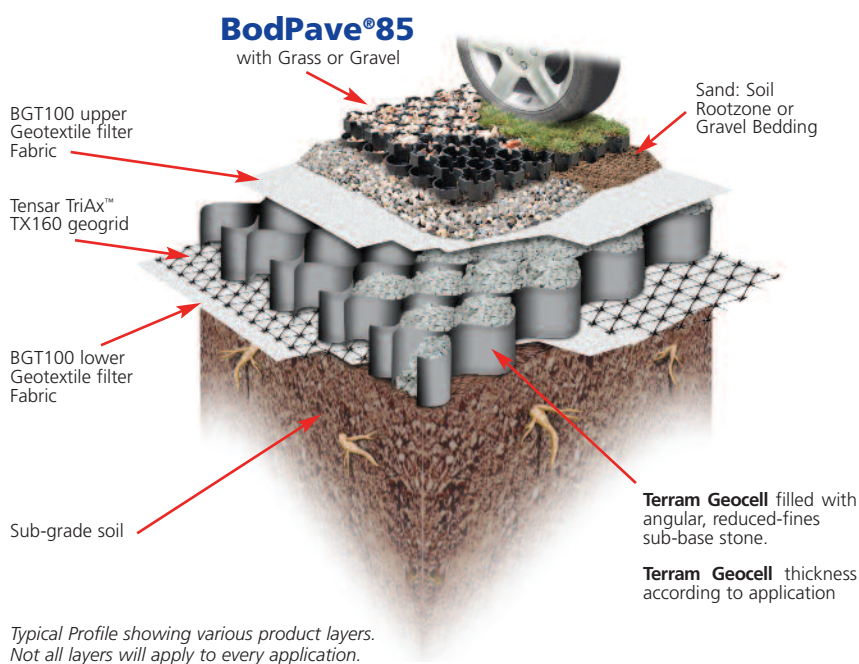
Tree Root Protection is supplied flat packed and opens to form a strong geocellular structure. It is simply pinned in place using metal fixing pins as described.

In this type of 'Reduced-Dig' or 'No-Dig' Tree Route Protection application, Terram Geocell is intended for use in conjunction with a water and gas permeable SuDS (Sustainable Drainage System) compliant pavement surface product such as BodPave<sup>®</sup>85 cellular plastic paving, Concrete Porous Block Paving or Porous Asphalt surfaces. Although Terram Geocell can be used by traffic in isolation for a very limited period when filled; it is not advised that Terram Geocell is used as the permanent surface finish for vehicle access routes. Exceptions may arise where Terram Geocell is installed as a temporary haul road for example as a site access route and may be removed and disposed of or fully re-surfaced after use. Refer to installation method details for further information.

### GENERAL INSTALLATION ADVICE FOR ALL APPLICATIONS

Prior to commencing works it is advisable to seek the professional opinion and approval of the Local Planning Department and Arboriculture Officer. Specific design limitations may be determined by Tree Officers, Engineers or Planners and must be closely adhered to. All applications will vary according to the site conditions and specific tree species involved. The ground and tree roots within the tree root protection zone must be protected from compaction and damage at all stages of the construction works. Works may involve varying degrees of excavation or build-up where edge retention is required, which must avoid root damage and soil compaction. The use of mechanical equipment or even low ground pressure machinery in the tree root protection zone must be avoided and hand tools may be the only method of excavation close to the root system.

### Typical Profile



### SPECIFICATIONS

| PRODUCT          | PANEL SIZE | CELL DIAMETER & DEPTH | PANEL WEIGHT | MATERIAL                | LOADING APPLICATION | PART No. |
|------------------|------------|-----------------------|--------------|-------------------------|---------------------|----------|
| Geocell™ 250/100 | 5m x 7m    | 250mm x 100mm         | 18kg         | Non-woven Polypropylene | Pedestrians         | 051397   |
| Geocell™ 250/150 | 5m x 7m    | 250mm x 150mm         | 25kg         | Non-woven Polypropylene | Cars/Light vehicles | 051403   |
| Geocell™ 220/200 | 6m x 3m    | 220mm x 200mm         | 20kg         | Non-woven Polypropylene | HGV's               | 051380   |

| PRODUCT      | MATERIAL  | SIZE                 | UNIT | PART No. |
|--------------|-----------|----------------------|------|----------|
| Fixing U-Pin | Steel rod | 550mm long x 8mm dia | Each | 082834   |

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## INSTALLATION METHOD FOR PERMANENT ACCESS ROUTES AND CAR PARKS

1. Obtain the approval of the Local Planning Department and Arboriculture Officer that this method of construction is appropriate and acceptable for the application and to determine the limits of construction and proximity to the tree.
2. Prepare the site by carefully removing all debris and reducing surface levels to the allowable reduced dig as appropriate to the specification, whilst strictly avoiding soil compaction and tree root damage. Build-up directly on the existing surface levels may be necessary.
3. Ensure that the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile. Do not roll or consolidate the area.
4. Install tanalised timber edging boards or other approved edge retention to the perimeter of the construction zone as appropriate to the total layer profile thickness. Avoid damage to tree roots when placing fixing posts and pegs. Concrete kerbs are unlikely to be appropriate or allowed.
5. Install a layer of BGT100 Geotextile Fabric across the site, overlapping adjacent rolls by a minimum of 150mm. It may be necessary to lightly pin the Geotextile in place until the overlying layers are installed.
6. An optional layer of Tensar TX160 TriAx<sup>™</sup> Geogrid may be required at this stage, possibly determined by the site soil strengths (i.e. weak CBR% strength\*), the proposed application and applied load such as HGV's. In some cases the TX160 layer may also aid the reduction of the required layer thickness of Terram Geocell where an extremely limited allowable excavation or build-up has been applied. Place the Geogrid layer over the Geotextile Fabric layer and fix down using steel pins to hold flat. Overlap adjacent rolls by minimum 150mm. Avoid tree root damage and soil compaction.
7. Open out and lay the specified layer thickness of Terram Geocell (100mm/150mm/200mm deep) and pin in place between the edging boards. It may be necessary to cut the Terram Geocell to size using a sharp knife or it can be left uncut and folded up against the edgings if preferred.
8. Pin the Terram Geocell in place using Steel Fixing Pins or similar approved. The pins are generally used to maintain the cells in an open and fully expanded position whilst the cells are being filled and also to stop the structure from being pushed up by migrating aggregate during the filling process. Pin spacing will vary according to the site conditions, but will generally be required at 1m – 2m centres on flat surfaces, mainly placed around the perimeter of the area and where adjacent sections of Terram Geocell abut each other, with less in the middle of the area. Drive the pins in so that they are just touching the top of the cells but do not compress the fabric. Avoid tree root damage during the pinning process.
9. Fill the Terram Geocell, working toward the tree from the furthest point away and using the filled Terram Geocell as a platform. The cells must be filled with clean, open graded angular aggregate, normally in the particle size range of 5mm – 45mm. Not single sized or rounded aggregate. The project engineer may determine alternative fill materials such as clean 4/20 or 4/40 stone or a reduced-fines DoT Type 1X sub-base. It is not acceptable to use a standard DoT Type 1 Sub-base within the cells for tree root protection. Do not roll the surface, a light vibratory compaction plate (whacker) may be permitted to settle the stone into the cells, seek advice from the specifier or Tree Officer on this detail. Do not contaminate the filled cells with site debris, soil or mud.
10. Install the permeable pavement layer/wearing course i.e. BodPave<sup>®</sup>85, Block Paving, Porous Asphalt, on top of the Terram Geocell according to the manufacturers recommendations. Each porous pavement layer will have a specific design layer requirement; therefore for example, where a sand or sand:soil bedding layer is specified or a contaminant filtration layer is required, then a layer of BGT100 Geotextile Fabric shall be placed above the Terram Geocell prior to the pavement bedding layer being installed and finished according to manufacturers instructions. The Geotextile will stop the pavement bedding layer from migrating down into the aggregate voids within the Terram Geocell.

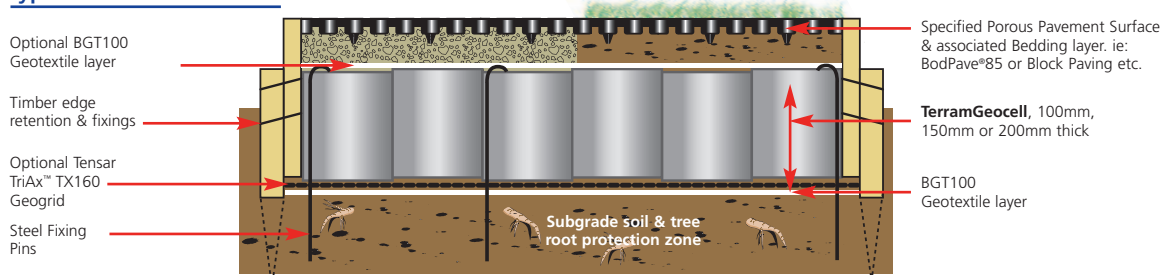
For installation recommendations for BodPave<sup>®</sup>85 cellular paving for Grass & Gravel, refer to BodPave<sup>®</sup>85 Specification and Installation Guidance Notes. For all other pavement layer products, refer to the specific manufacturers' guidance.

## INSTALLATION METHOD FOR TEMPORARY ROADS AND SACRIFICIAL PAVEMENT LAYERS IN HAUL ROADS

In some applications Terram Geocell may be installed as a temporary haul road base and completely removed after use. Alternatively it may have a sacrificial stone layer placed over it which is removed and replaced with a permanent permeable pavement solution when use of the haul road is complete.

1. Obtain the approval of the Local Planning Department and Arboriculture Officer that this method of construction is appropriate and acceptable for the temporary access and to determine the limits of construction and proximity to the tree.
2. Apply all construction detail as for items 2 to 9 above for 'Permanent Access Routes'.
3. Place a layer of BGT100 Geotextile or greater strength Geotextile (i.e. Terram 2000) onto the Terram Geocell surface. The geotextile grade will be determined by the specific site design criteria and degree of haul road traffic proposed. This layer will be removed and replaced later if a porous pavement surface is being installed on the Terram Geocell.
4. Place a minimum 100mm thick layer of either clean graded stone or DoT Type 1 sub-base stone onto the surface. This will be the sacrificial pavement layer to be removed later. Aggregate specification will be determined by the project manager.
5. During use of the access route, routinely check for erosion of the surface and repair with stone as required to avoid exposure of the geotextile.
6. After the haul road use is completed, remove the sacrificial layer of stone and geotextile and replace with the preferred permeable pavement layer in accordance with manufacturers recommendations. Alternatively remove the entire construction profile to return the site to its original status. It is critically important to avoid contamination of the remaining layer of open-graded stone within the Terram Geocell where partial removal is carried out and at all times to avoid damage to tree roots and soil compaction during removal and disposal of the construction layers.
7. Where complete removal of Terram Geocell is required, seek the specifiers' advice on renovation and restoration of the landscaped surfaces within the tree protection zone.

### Typical Profile Construction



### Other useful notes on Tree Root Protection

- In most applications the total porous pavement area should not exceed 20% of the tree root protection area.
- It is advisable to seek an Engineers advice on the required Terram Geocell layer thickness related to local soil strengths and proposed traffic loadings.
- Soil compaction will severely affect the trees ability to take up water and oxygen; similarly, raising soil levels around trees will deprive roots of oxygen and cause stress and dieback.
- In most cases 80% - 90% of a trees root system are in the upper 1m of soil and the small fibrous tree roots are the most important to a trees health. The fine roots enable transport of oxygen, water and nutrient to the tree via the larger roots which also anchor the tree and provide stability. Severing only a small proportion of the fine surface root structure can severely affect the tree, causing stress, dieback and loss of stability.

\* CBR% Strength = California Bearing Ratio – a measure of subgrade soil strength.

### Further Reading

- British Standard: BS5837 1991 / 2005 – Trees in Relation to Construction - Recommendations.
- Arboricultural Advisory and Information Service: Practice Note 1 – 'Driveways Close to Trees' (APN1).
- 'Tree Root Systems'. (M. Dobson 1995) – Arboricultural Research Information Note 130/ARB/95.
- 'Driveways Close to Trees' (M. Dobson / D. Patch 1996). Arboricultural Practice Note 1.
- 'Guidance for Trees: Conflict or Compliment?'. (R. Nicholson 2001). Arboricultural Journal No. 25.

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