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Landscape Architecture

Planning • Design • Implementation

Proposed Housing:
Land to r/o 68 Britannia Road, Burbage:
PLOT 7 HEALEY
Arboricultural Implications Assessment & Method Statement

Prepared for:

Mr & Mrs Healey

Report Number: KL-195-001

March 2013

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ARBORICULTURAL IMPLICATIONS ASSESSMENT & METHOD STATEMENT:
PROPOSED HOUSING LAND TO R/O 68 BRITANNIA ROAD, BURBAGE - PLOT 7 HEALEY

1. INTRODUCTION

Kova Landscape was instructed by Mr & Mrs Healey to carry out a pre-development tree survey and to produce an arboricultural implications assessment and method statement for proposed housing on land to the rear of 68 Britannia Road in Burbage – Plot 7.

This report is an advisory document, produced in accordance with BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' to inform the design and construction of a new dwelling by highlighting the above and below ground arboricultural constraints.

This report includes the following:

Tree Survey
A survey to determine the location and status of all trees within the site, and any trees on adjoining land which may affect, or be affected by, the proposed development. Data collected from this survey has been used to identify trees for removal and trees for retention based on a categorization method.

Tree Constraints Plan
A plan showing above and below ground constraints that retained trees pose by virtue of their size and position in relation to the proposed development.

Arboricultural Implications Assessment
An assessment of the proposed development and tree losses.

Tree Protection Plan & Arboricultural Method Statement
A plan showing trees to be removed, trees to be retained, the location of protective barriers/fencing, and any other relevant physical protection measures including ground protection. This is supplemented with a method statement detailing how the works will be carried out to ensure protection areas remain intact.

2. TREE SURVEY METHODOLOGY

Condition Status
To determine the status of the trees a tree survey was carried out by Louise Kovarovic CMLI, chartered landscape architect and practice director at KOVA Landscape Ltd. who holds a Technicians Certificate in Arboriculture. The site was visited on 5th December 2012 during dry, bright but frosty weather conditions.

Trees with a stem diameter above 75mm (measured at 1.5m above adjacent ground level), tree groups, shrub masses, hedges, and other relevant features have had their

positions confirmed on the Tree Survey Plan KL.195.001 at ***Appendix A***. Please note that the position of all trees is approximate only.

The condition of each tree was assessed in accordance with BS5837: 2012 Table 1 'Cascade chart for tree quality assessment' at ***Appendix B***. This can be summarised as follows:

- Category A - Those trees of high quality with an estimated remaining life expectancy of at least 40 years
- Category B – Those trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- Category C – Those trees of low quality with an estimated remaining contribution of at least 10 years, or young trees with a stem diameter below 150mm
- Category U – Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

The survey is based on a purely visual assessment, conducted at ground level with the aid of binoculars, and therefore is preliminary in nature. No tissue samples were taken or any internal investigation of subject trees undertaken.

Trees are dynamic living organisms, whose health and condition can be subject to rapid change, depending on a number of external and internal factors. The conclusions and recommendations contained in this report relate to the trees at the time of the inspection.

Root Protection Area

In order to avoid damage to roots and the rooting environment of retained trees, the root protection area (RPA) has been calculated for each of the category A, B and C trees. This is a minimum area in m2, which should be left undisturbed around each retained tree.

These figures are calculated using the formulas below taken from BS 5837: 2012:

For single stem trees, the RPA has been calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

For trees with more than one stem, the following calculation methods has been used:

a) For trees with two to five stems:

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

b) For trees with more than five stems:

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

3. SURVEY RESULTS

The Site
The site is located on land previously part of the private landscaped gardens to The Lodge, 46 Lutterworth Road, Burbage.

The site is predominantly close mown grass with mature tree and shrub borders along the southeast and northwest boundaries.

To the northwest the site is bounded by rear gardens to houses on Britannia Road. A 1.8m timber close-boarded fence obscured by a dense mass of evergreen and deciduous trees and shrubs defines the site boundary. A number of the trees, mostly on land adjacent to the site, including a group of Scot's Pine and a Manna Ash are subject to a TPO (Ref 0801/04/11 dated 1982 – G2).

To the southeast the site is bounded by rear gardens to houses on Lodge Close. A 1.8m timber close-boarded fence obscured by a dense mass of evergreen & deciduous trees and shrubs defines the site boundary.

Site boundaries are open to the northeast and southwest, bounded by building plots yet to be developed. Land to the northeast (referred to as Plot 6) is predominantly close mown grass with two large mature Cedars, both of which are subject to a TPO (Ref 0801/04/11 dated 1982 – T1 & T3). Land to the southwest is more open with limited vegetation cover; predominantly bare earth with a small number of mature trees along the site boundary to the southeast and northwest.

Subject Trees
Details of each tree surveyed including their true canopy spread and additional information relating to age, size, condition etc. are given in the Tree Survey Schedule at ***Appendix C***.

As well as those trees within the site boundary a number of additional trees, on adjacent land, have been included where it is considered that they could pose a constraint on any development proposals for the site.

Access to adjoining properties was not possible at the time of survey. Where access to individual specimens was prevented due to their location outside the site boundary measurements have been estimated.

A total of 3no groups of trees have been recorded. A breakdown of the numbers of trees in each retention category can be seen in Table 3.1 below.

Table 3.1 – A breakdown of the numbers of trees, groups of trees, and hedgerows in each retention category

Retention Category	Individual Trees (T)	Groups of Trees (TG)	Hedgerows (H)
A High Quality	0	0	0
B Moderate Quality	0	3	0
C Low Quality	0	0	0
U Unsuitable for retention	0	0	0
Totals	**0**	**3**	**0**

All U category trees should generally be removed for reasons of sound arboricultural practice or for health and safety reasons, irrespective of any development proposals, unless they offer particular conservation value to the site, in which case these will be highlighted in the survey schedule along with appropriate recommendations. In this case no U category trees have been recorded.

Regarding C category trees; it may not always be possible or desirable to retain low quality trees within the context of a proposed development, unless they are in such a location that they do not represent a significant constraint on the design brief. Young trees, and those with stem diameter of less than 150mm, will normally be placed in the C category, unless it is considered that they are of especially good form or are of a species that is particularly rare, in which case they may be upgraded. In certain cases it may be appropriate to consider re-location of C category trees within the site.

All A & B category trees (high and moderate quality) will under normal circumstances be retained on development sites, and should ideally influence and inform the conceptual design, site layout, and ins some cases the specific construction methods to be used – the root protection area and/or crown spread of these trees will generally form a construction exclusion zone, although under certain circumstances it may be possible to

build or operate within these area providing that appropriate measures and specifications have been formally agreed between the local planning authority the consulting arboriculturalist and the developer/client.

Tree Constraints Plan
Table 3.2 below provides details of the root protection area (RPA) of all trees surveyed, which were classified as category A, B or C specimens. The table also gives an approximate root protection radius for these trees.

Table 3.2 – Approximate root protection radius & RPA of category A, B & C trees

Tree No	Species	Stem Diameter (mm)	Approximate Root Protection Radius (m)	Root Protection Area (m^2)
TG1	Black Pine, Holly, Yew, Fir, Hawthorn	(150-600)	(1.80 – 7.20)	(10 – 163)
TG2	Norway Maple, Holly	300-400	3.60 – 4.80	41 - 72
TG3	Sycamore, Holly, Oak, Scot's Pine, Fir, Yew	150-650	1.80 – 7.80	10 - 191

The RPA for each tree group as listed above is shown on the Tree Constraints Plan KL.195.002 at ***Appendix D***. Estimated measurements are shown in brackets.

4. ARBORICULTURAL IMPLICATIONS ASSESSMENT

The Proposal
The proposed development comprises construction of a two-storey dwelling with double garage attached and private driveway.

Development proposals are shown on Hayward Architects drawing 12 59 14A January 2013 at ***Appendix E***.

Implications
Construction of the proposed development will require:

- Removal of 1no B Category tree within TG3 (Norway Maple) to facilitate construction of the new garage
- Construction within the RPA of 2no B Category trees within TG2 (Norway Maple and Holly) for installation of hard standing and construction of new garage
- Construction within the RPA of 1no B Category tree within TG1 (Black Pine) for installation of hard standing to new drive

Additional recommendations include:

- Removal of 1no Scot's Pine within TG3 – poor specimen leaning into neighbouring trees
- Crown lift to 4m all retained trees to facilitate new ornamental shrub planting – see landscape proposals KL.195.004

Existing Trees to be Removed

The proposed development will not require the removal of any large numbers of healthy or significant trees.

Construction within the RPA of Existing Trees Retained

The proposed development will require construction within the RPA of 3no B Category trees, two of which are protected by a group tree preservation order. Construction within the RPA will include installation of hard standing and excavation of foundations for the new garage and drive.

Construction within the RPA of retained trees has the potential to result in loss or damage of retained trees resulting from:

- Physical damage to roots
- Changing ground levels
- Compaction of subsoil
- Creating an impermeable surface, preventing the infiltration of water and gaseous exchange associated with healthy root growth
- Contamination of subsoil

Specific mitigation measure as described in the method statement below are therefore recommended to ensure the successful retention of these three trees.

Access Facilitation Pruning

Access facilitation pruning to provide the working and access space necessary for the construction of the proposed garage will be minor and contained within the site.

Conclusions & Recommendations

Where possible, the site layout has been designed to retain trees of high and moderate value, and to minimise construction within the RPA of retained trees, taking into account the above and below ground constraints posed by existing trees both within and adjacent to the site.

Overall there will be no effect on the landscape when viewed from locations outside the site, and provided the trees identified for retention are protected by the measures set out below in the arboricultural method statement, no lasting or significant impacts are anticipated.

Statutory Obligations

Work to trees covered by a Tree Preservation Order (TPO) or within a Conservation Area (CA) require permission or consent from the Local Planning Authority (LPA). It is necessary to gain confirmation from the LPA of any TPO's or CA's that apply to the site, and to follow the necessary application procedure if tree surgery, or indeed felling, is required in respect of protected trees. Full planning consent will however, override the need for a separate application, providing that details of all tree works were included in the submission and subsequently approved by the LPA.

It is a criminal offence under normal circumstances to disturb or destroy – whether intentional or unintentional – the nesting sites of wild birds or the roost sites of bats, under the Wildlife & Countryside Act 1981 and the Countryside and Rights of Way Act 2000. Therefore, avoid carrying out significant tree works during the bird nesting season (from March to September inclusive) and ensure that trees are professionally checked for signs of bat roosts and/or bat activity before starting any tree work. If in doubt always contact the office of Natural England.

5. TREE PROTECTION PLAN & ARBORICULTURAL METHOD STATEMENT

The Tree Protection Plan KL.195.003 at ***Appendix F*** shows:

- Trees selected for removal
- Trees selected for retention
- The precise location for the erection of protective barriers and ground protection

Vegetation Clearance

All vegetation clearance shall be undertaken outside the bird-nesting season, which generally extends between March and September inclusive, dependent on weather, to ensure compliance with the Wildlife & Countryside Act 1981 (as amended). If birds are found to be nesting any works, which may affect them, shall be stopped until the young have fledged and the nest abandoned naturally.

Tree Works

All tree works shall be carried out during the dormant season where feasible, but not during periods of extreme frost or severe weather.

All trees selected for removal shall be felled, and the remaining stumps ground out so as to avoid damage to trees and hedgerows retained and/or disturbance to the RPA. All arisings shall be removed from site.

All tree works shall be carried out in accordance with BS 3998: 2010 'Tree Work' (with amendments) to current arboricultural best practice by a professional and specialist arboricultural contractor who carries the appropriate experience and insurance cover.

All mature trees shall be checked for bat roosts in any cavities before arboricultural works are carried out. Any bat roosts shall be reported to the Ecological Clerk of Works, and no works shall be carried out on any tree in which bat roosts are located without prior written instructions from the Ecological Clerk of Works. The inspection of bat roosts, and any subsequent action thereon, must be carried out by appropriately licensed personnel.

Requirements for Tree Protection

The recommendations of BS 5837: 2012 and NJUG Volume 4 (as appropriate to operations) shall be followed when working close to trees.

Before any materials or machinery are brought onto site and before any demolition, construction work, or soil stripping commences, the soil structure within the root protection area of retained trees and hedgerows shall be protected using a combination of barriers and ground protection as described below.

Once in place, barriers and ground protection shall be regarded as sacrosanct, and shall not be removed or altered without prior recommendation by an arboriculturist and approval of the Local Planning Authority (LPA).

Barriers

All trees and hedgerows retained shall be protected by the use of tree protection fencing (TPF) to be erected in the locations shown on the Tree Protection Plan, to prevent accidental damage by vehicles and contractors. The TPF shall remain in place throughout the construction process and removed only after completion of all works.

TPF shall comprise of Heras type fencing, well-braced to resist impacts by attachment to a scaffold framework set firmly into the ground, similar to that shown in Figure 2 BS 5837: 2012 – Protective Barrier (default specification) at ***Appendix G***.

Clear all weather notices shall be fixed to the outside of the TPF at regular intervals. Notices shall be in accordance with the Tree Protection Notices at ***Appendix H.***

Within the fenced zone the following shall apply:

- No mechanical excavation whatsoever
- No excavation by any other means without consent from the LPA
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant and materials
- No storage or handling of any chemical including cement washings
- No pedestrian or vehicle traffic
- No fire lighting

All operatives and other relevant personnel are to be informed of the role of TPF and its importance. Tree protection should be included in the induction and /or briefing sessions of all site operatives.

Additional Precautions outside the Exclusion Zone
In addition to the above, further precautions are necessary adjacent to trees:

- Ensure all wide or tall loads, or plant with booms, jibs, and counterweights can operate without coming into contact with retained trees
- Any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure adequate clearance from trees is maintained at all times
- A 10m separation distance shall be observed between any tree and substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals
- No fire shall be lit such that flames come within 5m of tree foliage, branches or trunk
- Notice boards, telephone cables or other services should not be attached to any part of a tree
- No fuels, oils, or substances, which will be damaging to the trees shall be spilled or poured on site

Ground Protection
Where construction will be within the RPA of retained trees, specific measures are required to protect the soil structure. The following measures are to be implemented:

Temporary Ground Protection
Where unmade ground within the RPA of retained trees is to be exposed to construction damage, e.g. around the new dwelling whilst it is being constructed, and along the construction access route off Britannia Road, new temporary ground protection shall be installed. New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

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

Where vehicle access for the construction operation is required, it is recommended that the base for the new drive be constructed in advance of the main building works and prior to the installation of the finished surface, to provide a load-bearing surface that will protect the soil structure within the RPA of retained trees. As described below, the base shall be constructed using a 'no-dig' method incorporating a 3-dimensional cellular

load spreading system infilled with a no-fines aggregate. Alternatively, where there is concern about contamination of the road base during the construction operation, heavy duty ground protection mats, e.g. Grassform TrakMats, or similar, could be used to provide a temporary solution prior to construction of the new drive.

Temporary ground protection shall be installed within the area highlighted on the Tree Protection Plan KL.195.003.

Permanent Ground Protection

New hard standing within the RPA of retained trees shall be constructed using a no-dig method, i.e. construction that does not involve excavation at >100mm below existing ground levels. The design should incorporate the use of a 3-dimensional load spreading system such as the 'Cellweb' Cellular Confinement supplied by Geosynthetics Ltd., as an integral component of the sub-base. See typical construction details and installation method statement at **Appendix I.**

All new hard standing areas shall be constructed with a porous and permeable sub-base and surface. It is recommended that the following surfacing options be used:

- Block pavers with in-built infiltration spaces laid dry-jointed on a sharp sand foundation
- Washed gravel. Avoid materials with high fines content, such as binding gravels or hoggin

Where levels are to be raised within the RPA of retained trees, this shall be achieved by using a granular material, which remains gas and water permeable throughout its design life.

Site Compound and Storage Area

The site compound, storage areas and contractor's parking shall be located within an area of the site that is outside the RPA of retained trees. Locations to be agreed prior to the commencement of any works on site.

Services

No information has been provided regarding the location of services. However, it is anticipated that any underground services associated with the new dwelling will be located within the new driveway.

Where possible, services should be located outside the RPA of retained trees - approximate location of service strip as shown on Tree Protection Plan KL.195.003. Where it will be necessary to run services within the RPA of retained trees, care shall be taken in the routing and methods of installation. All underground services shall be installed in accordance with BS5837: 2012 and NJUG Volume 4 2007 Revised. Wherever possible they shall be kept together and trenchless techniques used. The location of all

service runs/trenches is to be agreed with the LPA prior to commencement of the works.

Any excavations, which have to be undertaken within the RPA, should be carried out carefully by hand, avoiding damage to the protective bark covering larger roots. Roots, whilst exposed, shall be wrapped in dry, clean hessian sacking to prevent drying out and to protect from rapid temperature changes. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch, using clean, sharp bypass secateurs or handsaw. Roots larger than 25mm shall only be severed following consultation with the LPA Tree Officer, as these may affect the structural stability of the tree.

Prior to backfilling, any hessian wrapping shall be removed and retained roots surrounded with sharp sand (not builders' sand), or other loose granular fill, before soil or other material is replaced. The material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

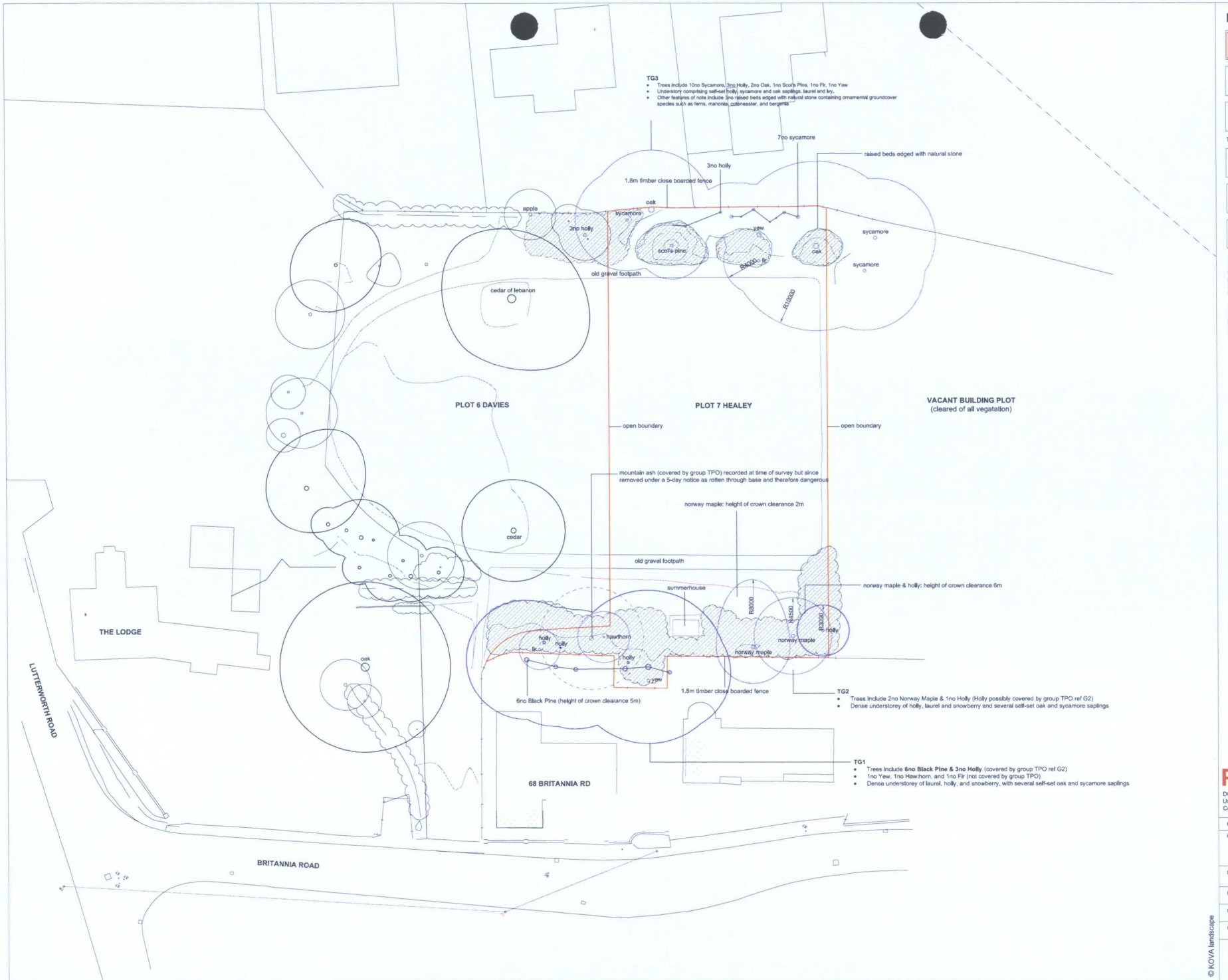
Soft Landscaping within Root Protection Areas (RPAs)
Where soft landscaping is to be carried out within the RPA of retained trees, ground preparation shall be carried out sensitively to avoid root damage as much as is practicable. At no time shall heavy plant be used within any RPA. Removal of existing vegetation shall be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

At no time shall a rotovator be used within any RPA to prepare the soil. Any levelling will be done by hand with the use of hand tools.

New plants shall be planted individually to minimise root disturbance (e.g. no 'trench' planting) and organic bark mulch applied over all planting areas to a depth of 75mm.

No works shall be carried out within RPAs if the soil moisture is of a level likely to allow compaction to occur.

APPENDIX A:
TREE SURVEY PLAN



KEY

- Plot boundary
- TG1 — Tree group reference number
- B category tree/group

Trees with a bold outline are covered by TPO 1982 0801/04/11

- R4000 — Radius of canopy where not individually surveyed
- Shrub masses/ornamental borders
- Other trees noted on neighbouring land

This survey was carried out following guidelines set out in British Standard 5837: 2012 "Trees in Relation to Design, Demolition and Construction - Recommendations", and without prejudice to any work proposed within the vicinity of the trees. The survey is based on a purely visual assessment, conducted at ground level with the aid of binoculars, and is therefore preliminary in nature.

This survey confirms the position of all individual trees with a stem diameter above 75mm (measured at 1.5m above adjacent ground level), tree groups, shrub masses and hedges on or adjacent to the site. Please note that the position of all trees is approximate only based on topographical survey data.

PLANNING

DO NOT SCALE THIS DRAWING
Use only figured dimensions
Contractor to verify all dimensions on site prior to commencement of works

Revisions:	Dwn:	Date:

Project: Proposed Housing Plot 7 -
Land to r/o 68 Britannia Road, Burbage
for Mr & Mrs Healey

Drawing: Tree Survey Plan

Date:	04.03.13	Drawn:	LK
Dwg No:	KL.195.001	Scale:	1: 200 @ A1
Revision:	0	Revision Date:	

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APPENDIX B:
BS 5873: 2012 Table 1
Cascade Chart for Tree Quality Assessment

Table 1 **Cascade chart for tree quality assessment**

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

APPENDIX C:
TREE SURVEY SCHEDULE

TREE SURVEY SCHEDULE: PROPOSED HOUSING LAND TO R/O 68 BRITANNIA ROAD, BURBAGE - PLOT 7 HEALEY
Refer to Drawing KL.195.001 Tree Survey Plan

Tree No	Species	Height (m)	Stem Dia. (mm)	Branch Spread (m)				Height of Crown Clearance (m)	Age Class	Condition & Observations	Preliminary Management Recommendations	Estimated Remaining Contribution	Category Grading
				N	E	S	W						
TG1	6no Black Pine *(Pinus nigra)*, 3no Holly *(Ilex aquifolium)*, 1no Yew *(Taxus baccata)*, 1no Hawthorn *(Crateagus monogyna)*, 1no Fir *(Abies spp)*	<15	(150-600)	See plan				See plan	Y-M	Good to fair Boundary screen value Dense under storey of holly, laurel and snowberry, self-set oak and sycamore saplings Black Pine & Holly covered by TPO 0801/04/11 (1982) – ref G2	None	20+	B2
TG2	2no Norway Maple *(Acer platanoides)*, 1no Holly *(Ilex aquifolium)*	<15	300-400	See plan				See plan	M	Good to fair Boundary screen value Dense under storey of holly, laurel and snowberry, self-set oak and sycamore saplings Holly covered by TPO 0801/04/11 (1982) – ref G2	None	20+	B2

TREE SURVEY SCHEDULE: PROPOSED HOUSING LAND TO R/O 68 BRITANNIA ROAD, BURBAGE - PLOT 7 HEALEY
Refer to Drawing KL.195.001 Tree Survey Plan

Tree No	Species	Height (m)	Stem Dia. (mm)	Branch Spread (m)				Height of Crown Clearance (m)	Age Class	Condition & Observations	Preliminary Management Recommendations	Estimated Remaining Contribution	Category Grading
				N	E	S	W						
TG3	10no Sycamore *(Acer pseudoplatanus)*, 3no Holly *(Ilex aquifolium)*, 2no Oak *(Quercus robur)*, 1no Scot's Pine *(Pinus sylvestris)*, 1no Fir *(Abies spp)*, 1no Yew *(Taxus baccata)*	<15	150-650	See plan				See plan	Em-M	Good to fair Boundary screen value Under storey of self-set holly, sycamore and oak saplings. Raised beds contain mix of ornamental groundcover shrubs (Mahonia, Cotoneaster and Laurel), herbaceous perennials (Bergenia) and ferns. Overgrown due to lack of management. Scot's Pine - poor form with pronounced lean to SE into canopy of mature oak	Remove Scot's Pine to favour retention of oak	20+	B2

KEY TO NOTATIONS USED

Age Class:
Y = Young
Sm = Semi-mature
Em = Early mature
M = Mature
Om – Over-mature

Category Grading:
A = High quality and value
B = Moderate quality and value
C = Low quality and value
R = In need of removal

( ) numbers in brackets are estimated figures due to access restrictions

APPENDIX D:
TREE CONSTRAINTS PLAN



KEY

- Plot boundary
- G1 — Tree group reference number
- B category tree/group

Trees with a bold outline are covered by TPO 1982 0801/04/11

- Shrub masses/ornamental borders
- Other trees noted on neighbouring land
- Root Protection Area Category A, B & C trees
- RA200 — Root Protection Radius Category A, B & C trees
- Shadow pattern; current height as shown, ultimate height in brackets
  ht 10m (20m+)

Approximate Root Protection Radius & RPA of Category A, B & C Trees

No	Species	Stem dia. (mm)	RP Radius	RP Area
TG1	6no Black Pine, 3no Holly, 1no Yew, 1no Fir, 1no Hawthorn	(150-600)	(1.8-7.20m)	(10-163m2)
TG2	2no Norway Maple, 1no Holly	300-400	3.60-4.80m	41-72m2
TG3	10no Sycamore, 3no Holly, 2no Oak, 1no Scots Pine, 1no Fir, 1no Yew	150-650	1.80-7.80m	10-191m2

( ) estimated measurements due to access restrictions

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Revisions:	Dwn:	Date:

Project: Proposed Housing Plot 7 - Land to r/o 68 Britannia Road, Burbage for Mr & Mrs Healey

Drawing: Tree Constraints Plan

Date:	04.03.13	Drawn:	LK
Dwg No:	KL.195.002	Scale:	1: 200 @ A1
Revision:	0	Revision Date:	

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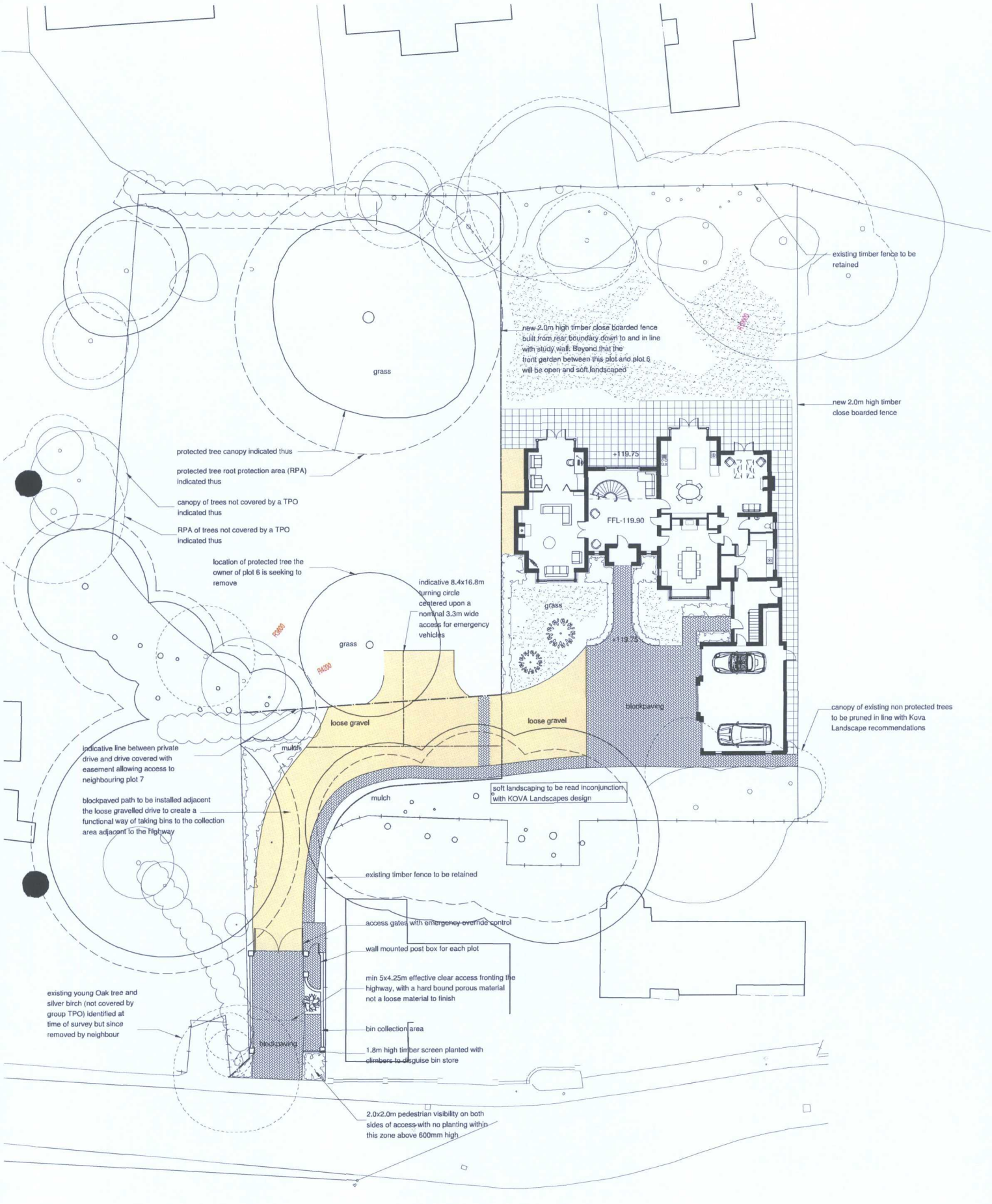
APPENDIX E:
PROPOSED SITE PLANS
Drawing No. 12/59 14



client	Mr & Mrs Healey		
project	proposed housing Plot 7 - Land r/o 68 Britannia Road Burbage, Leics		
drawing	proposed site plan		
scale	1 : 200	sheet	A2
author	JAF	date	JAN 2013

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job No 12/59 drawing No 14A

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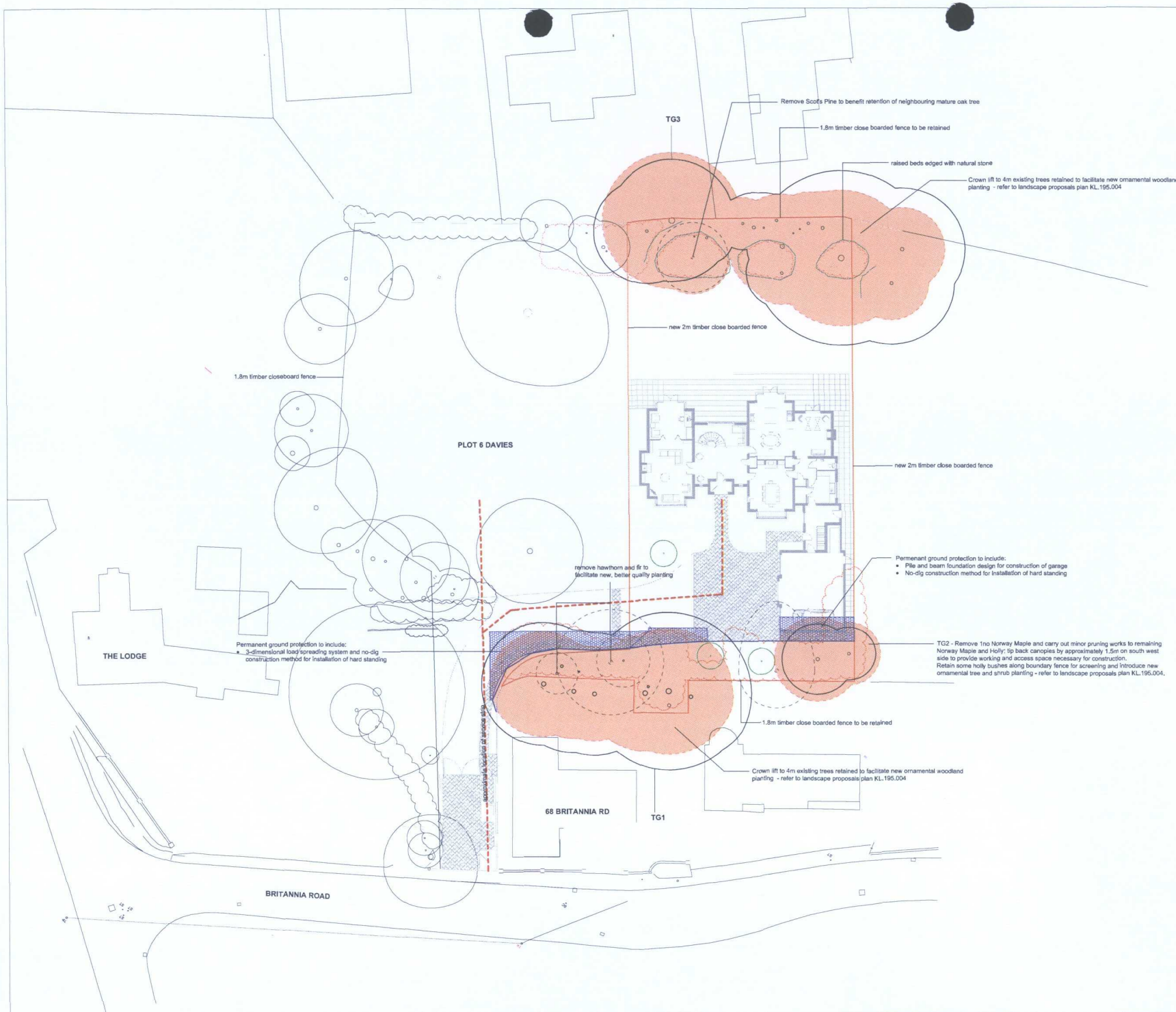
APPENDIX F:
TREE PROTECTION PLAN



KEY

- Plot boundary
- G1 — Tree group reference number
- Existing trees retained
- Root Protection Area of trees retained
- Existing trees removed
- Shrub masses/ornamental borders removed to facilitate development or re-landscaped on completion - refer to landscape proposals plan KL.195.004
- Permanent Ground Protection
  See Arboricultural Method Statement
- Tree Protection Barriers
  To comply with BS 5837: 2012 Figure 2 default specification - see Arboricultural Method Statement
- Proposed Replacement Tree Planting
  Refer to landscape proposals plan KL.195.004

PLANNING

DO NOT SCALE THIS DRAWING
Use only figured dimensions
Contractor to verify all dimensions on site prior to commencement of works

Revisions:	Dwn:	Date:

Project: Proposed Housing Plot 7 - Land to r/o 68 Britannia Road, Burbage for Mr & Mrs Healey

Drawing: Tree Protection Plan

Date:	04.03.13	Drawn:	LK
Dwg No:	KL.195.003	Scale:	1: 200 @ A1
Revision:	0	Revision Date:	

KOVA LANDSCAPE
www.kovalandscape.co.uk

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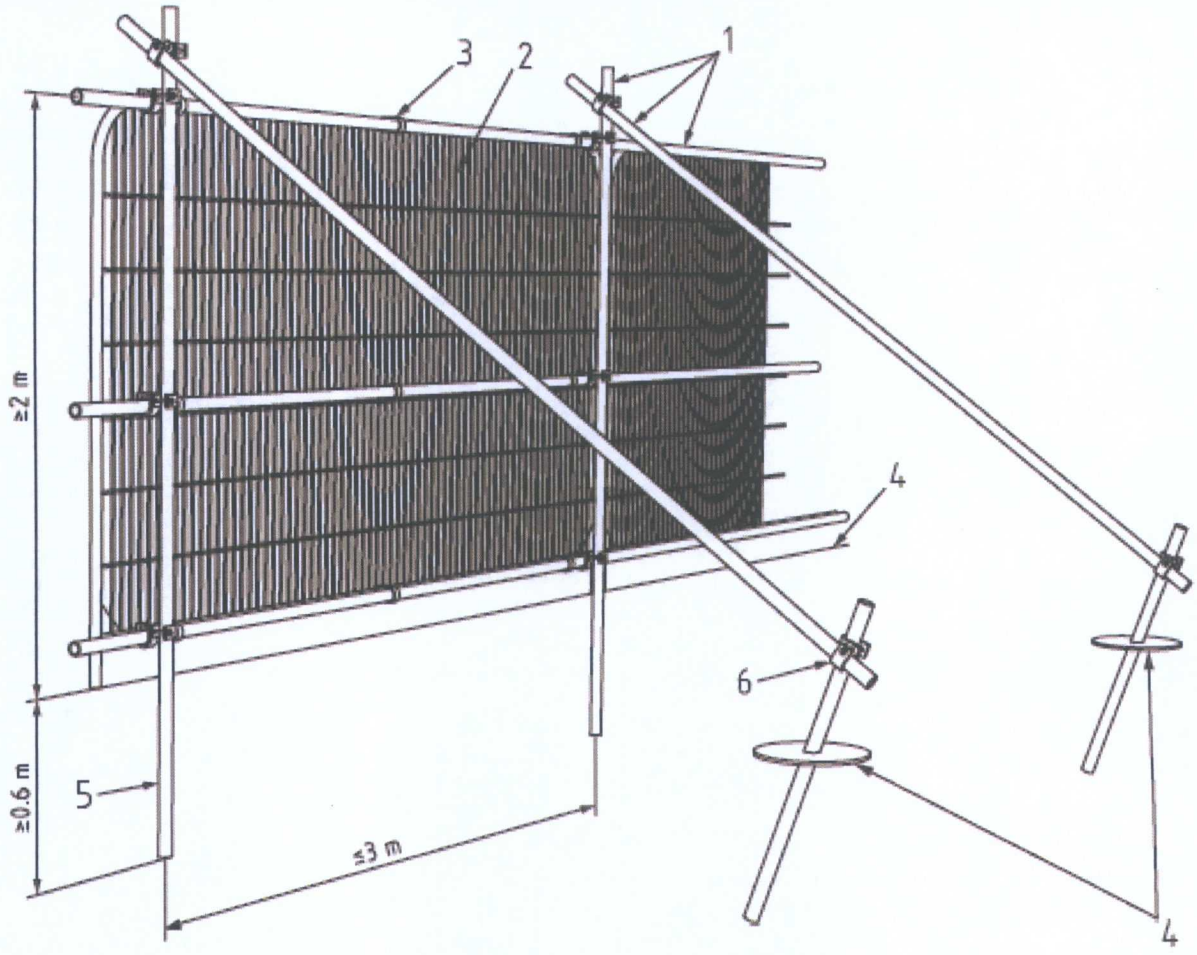
APPENDIX G:
BS 5837:2012 Figure 2
Default Specification for Protective Barrier

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

APPENDIX H:
Tree Protection Notices



PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.



TREE PROTECTION AREA

KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

APPENDIX I:
'Cellweb' Cellular Confinement System
Typical Construction Details & Installation Method Statement

Geosynthetics Ltd
Fleming Road
Harrowbrook Industrial Estate
Hinckley, Leicestershire
LE10 3DU
Tel 01455 617139 | Fax 01455 617140
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CellWeb Tree Root Protection® System

Installation Method Statement



When considering damage to tree roots, in applications of vehicular access and parking, the risk of oxygen depletion caused by compaction of subsoil's, site clearance damaging the root source and type of reinforcement are areas which need to be given due consideration.

Other risk factors are:

- Creating an impermeable surface
- Causing a rise in the water table due to construction
- Increasing ground level
- Contamination of subsoil's

1. Compaction

When looking at site conditions and use, the following information should be considered to enable a load bearing structure capable of supporting traffic to be proposed:

- Californian Bearing ratio (CBR) – Standard test method for measuring soil strength
- Soil types
- Water table
- Maximum load (vehicles)
- Acceptable rut depth
- Reinforcement type -
  CellWeb TRP® Cellular Confinement
- Type and Depth of engineered infill material -
  Clean and angular typically 4-20mm or 20-40mm

2. Dig (Strip Site)

Site stripping does damage some root structure prior to construction; however, the use of no-dig construction elevates the access road requiring edge protection.

3. No Dig

3.1. Remove surface vegetation	Use a suitable herbicide suitable for the specific vegetation and not harmful to the tree root system.
3.2. Place geotextile separation filtration layer	Use a Treetex T300 pollution control Geotextile over the prepared sub-grade. Overlap dry joints by 300mm. The three dimensional cell structure, is formed by ultrasonically welding polyethylene (perforated) strips / panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and the cell wall, increasing the stiffness of the system.
3.3. Edge restraint	A treated timber edging is usually acceptable.

4. Cellular Confinement and Backfill Material



- Expand the CellWeb TRP® 2.56m wide panels to the full 8.1 metre length.

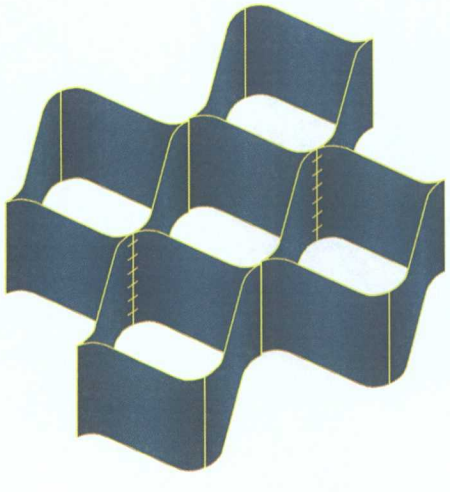
Pin the CellWeb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress.

Fill the CellWeb TRP® with a no fines angular granular fill (typically 4-20mm or 20-40mm) within each open cell.

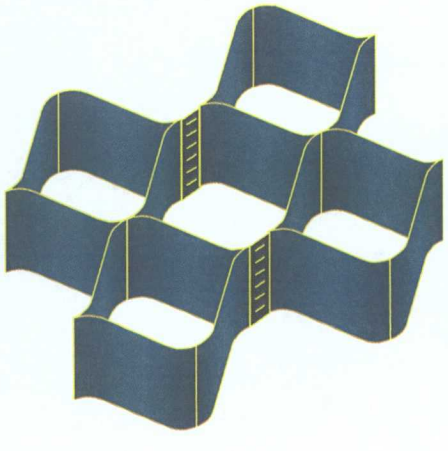
The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and geogrid-reinforced structures demonstrate a 50% reduction in construction thickness of the granular material.

- Below are illustrations of the correct stapling procedure for joining both edges and ends of panels together;

Panel Edges:



Panel Ends:



5. Surfacing Options

Block Paving:

5.1. Lay second layer of Treetex T300 pollution control Geotextile separation fabric over the filled CellWeb TRP® sections.

5.2. Lay sharp sand bedding layer compacted with a vibro compaction plate to recommended depth.

5.3. Place block paviors as per manufacturer's instructions.

Tarmac:

5.4 Place 25mm surcharge of the granular material above the CellWeb TRP® system and lay the bitumen base and wearing courses.

Loose Gravel:

5.5. Ensure CellWeb TRP® is completely filled.

5.6. Place decorative aggregate to required depth.

Note: A treated timber edge should be provided to restrict gravel movement

Grass Blocks:

5.7. Place second layer of Treetex T300 pollution control Geotextile separation fabric over the filled CellWeb TRP® sections.

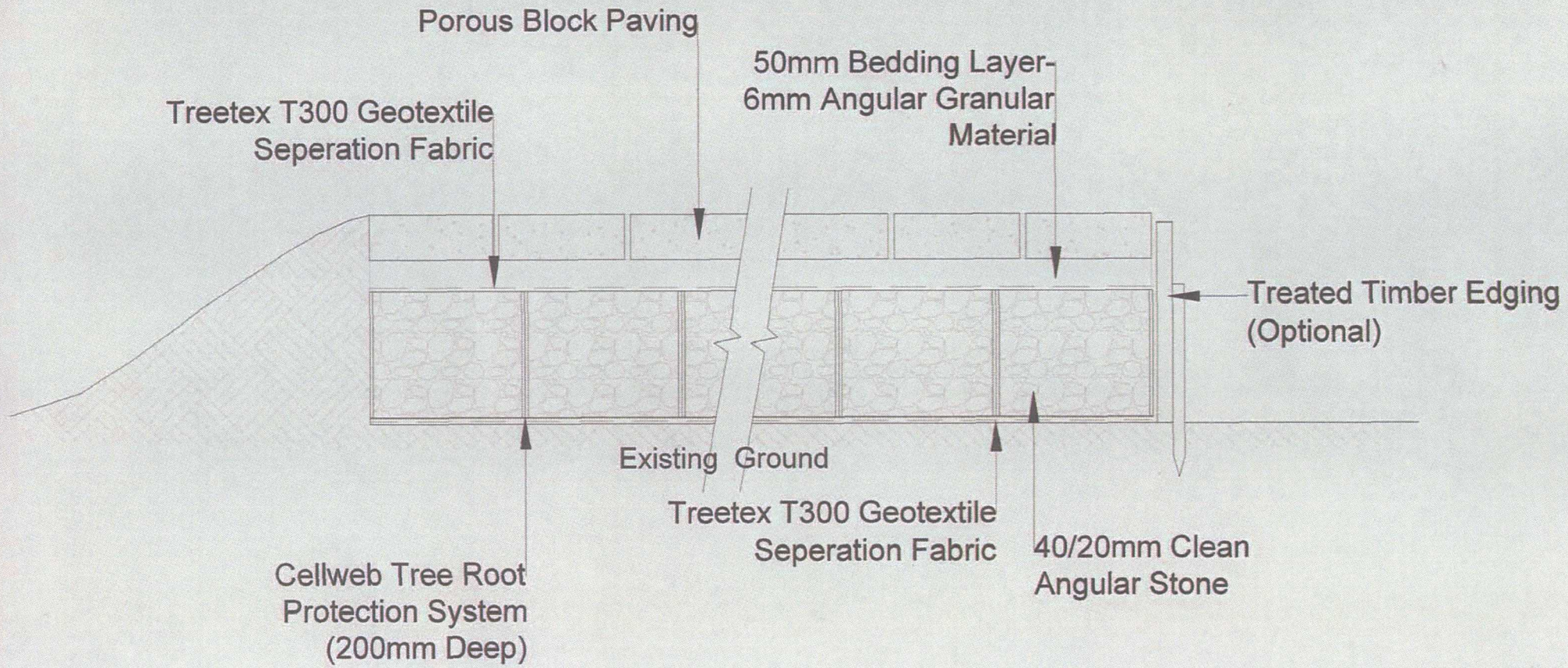
5.8. Place 50/50 Rootzone bedding layer to the required depth for a grass finish or 20mm sharp sand for gravel installation.

5.9. Lay Golpla® Grass/Gravel Paving System with 50/50 Rootzone mix or alternatively decorative gravel.

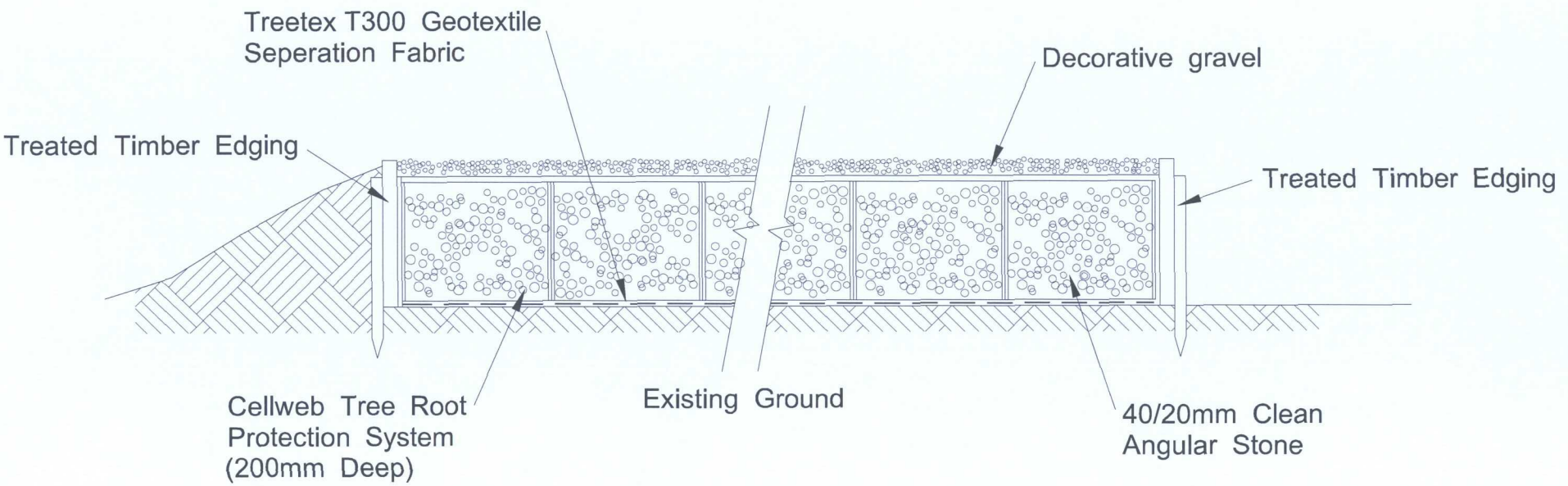
5.10. Seed as per architects instructions.

Concrete Slab

5.11. Lay CellWeb TRP® as previous and place second layer of Treetex T300 pollution control Geotextile directly over the filled panels. Pour concrete base as specified.



Geosynthetics Ltd Fleming Road, Harrowbrook Industrial Estate, Hinckley, Leicestershire. LE10 3DU Tel: 01455 617139 Fax: 01455 617140 www.geosyn.co.uk	Project: cellweb-porous block-200	Description: Cellweb Section - Tree Root Protection c/w Porous Block Paving Surface	*Drawn By:* RDS *Ref:* ----	*Scale:* NTS *Version:* V1	*Date:* 04 September 2012 *Sheet:* page 1 of 1	*Checked By:*



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TITLE

Cellweb Section - Tree Root Protection
c/w Gravel Surface

DRAWN BY	SCALE	DATE	CHECKED BY
	1:10	04/09	
DRAWING NO		REVISION	APPROVED
GS-CW-G-200			