HPK/2011/0064

SYLVANUS

arboricultural consultants ltd

15 FEB 2011

John A Booth MBA, MSc, FICFor, CEnv, FArborA, MIEEM, MEWI, DipArb(RFS), CUEW, LCGI(Hort), NDAgb.
Director & Principal Consultant
Chartered Arboriculturist & Chartered Environmentalist

Arboricultural Survey Report & Generic Method Statement

Regarding a New Bridleway

at

Storth Meadow Farm
Simmondley

and on behalf of

Derbyshire County Council

July 2010

242 Highfields Park
Broadway
Derby
DE22 1JY

Tel (01332) 556307
Mobile: 07783 968714
Email: info@jabooth.co.uk
Web: www.jabooth.co.uk

Arboricultural Association® REGISTERED CONSULTANT

SocEnv Society for the Environment

Institute of Chartered Foresters Registered Consultant

EWI MEWI

SUMMARY

This report is concerned with the arboricultural implications which may arise from the installation of a new access to serve Storth Meadow Farm, Simmondley.

The report is produced in accordance with the guiding principles of British Standard 5837 (2005) *'Trees in Relation to Construction – Recommendations'*.

The Root Protection Areas (RPA's) of all trees surveyed are calculated and recorded in the Tree Survey Schedule where they are expressed in linear metres; it is at this distance that tree protective barriers should be erected around any trees to be retained. Where construction is proposed within these areas special techniques must be employed and general guidance is contained herein.

The report concludes there needs be no adverse arboricultural impact associated with the proposal.

Contents

1 **Introduction**

1.1 Author's Qualifications and Experience

1.2 Instructions & Brief

1.3 Documents and Information Provided

1.4 Scope

2 **Site Visit and Observations**

2.1 Site Visit

2.2 Tree Survey Methodology

3 **Tree Protection - General**

3.1 Below Ground Constraints

4 **Other Considerations**

4.1 Trees and Wildlife

5 **Recommendations & Conclusions**

6 **References**

7 **Tree Survey Schedule & Plan**

8 **Appendices**

Appendix 1 Curriculum vitae

Appendix 2 Tree Survey Methodology

Appendix 3 No-Dig' Construction Example Specification

Figures

1 Tree Protective Barrier

2 Barrier Notice

All rights in this report are reserved. Its content and format are for the exclusive use of the addressee and agents in dealing with the subject matter and only they may reproduce or transmit it, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise. It may not be sold, lent, hired out or divulged to any third party not directly involved in the matter concerned without the written consent of Sylvanus Arboricultural Consultants Ltd.

© Sylvanus Ltd 2010

1 INTRODUCTION

1.1 Author's Qualifications and Experience: John Booth is a Chartered Arboriculturist, a Chartered Environmentalist, a member of the Expert Witness Institute, a Fellow, a Registered Consultant and past national Chairman of the Arboricultural Association, a Fellow of the Institute of Chartered Foresters, a member of the Institute of Ecology and Environmental Management and the Royal Forestry Society. He has over twenty five years experience of arboriculture and amenity tree management and has written papers published in respected journals such as the International Journal of Urban Forestry. He is trained in the use of the Quantified Tree Risk Assessment (QTRA) methodology and is a Bond Solon/Cardiff University certificated Expert Witness. A full CV can be found at Appendix 1.

This report is based on his site observations and the information provided.

1.2 Instructions and Brief: Jenny Southwell of Derbyshire County Council (DCC) (the client), sought a fee proposal for the work necessary to inform the possible installation of a access to serve Storth Meadow Farm, Simmondley (the site). A fee proposal was issued and accepted in writing on 21 June 2010. The brief was to undertake a survey and provide a Tree Survey Schedule compliant with the guiding principles of British Standard 5837 (2005) *'Trees in Relation to Construction: Recommendations'*. All survey data is recorded in the Tree Survey Schedule. In addition to the survey data, guidance is given regarding the protection of trees during development work and generic methodologies are given regarding how any arboricultural constraints might be overcome or their impacts minimised.

1.3 Documents & Information Provided: A site survey plan (4367L-11/004) of the proposed layout was provided and the location of the subject trees was plotted by eye on them. This was annotated so as to illustrate the tree survey No's, an extract of it supplements the Tree Survey Schedule.

1.4 Scope:

1.4.1 This report has been prepared for the sole use of the client. Any third party referring to this report or relying on the information contained herein does so entirely at his or her own risk.

1.4.2 Whilst every effort has been made to detect defects within the subject trees, no guarantee can be given as to the absolute safety or otherwise of any individual tree. The recommendations given are intended to reduce the likelihood of tree collapse but absolute safety is not a realistic goal; even apparently sound trees can fail. All recommendations are given in the context of the site's current usage; any change will dictate a further survey.

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

1.4.4 This report represents a survey and should not be construed to be a detailed tree inspection report. All recommendations are made in the context of the site's current usage; any change will dictate a further inspection.

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

1.4.6 The expertise of the author of this report is ARBORICULTURE, any non-arboricultural references made within this report are made as a lay person.

2 SITE VISIT AND OBSERVATIONS

2.1 ***Site Visit:*** A site visit was carried out on 8 July 2010 by John Booth accompanied by Jenny Southwell. The trees were surveyed visually from the ground. No drilling or excavation was carried out on this occasion. The weather at the time of the visit was dry and visibility was adequate for the purposes of the visit.

2.2 ***Tree Survey Methodology:*** The survey was undertaken in accordance with the guiding principles of British Standard 5837 (2005) *'Trees in Relation to Construction: Recommendations'* and the trees were assessed objectively and without reference or influence being given to any proposed site layout. Using 'Visual Tree Assessment' (VTA) techniques the trees were surveyed from the ground. VTA is a methodology, employed by arboriculturists, to evaluate the structural integrity of a tree, relying on observation of a trees biomechanical and physiological features; this is the method generally adopted and is appropriate in this instance. Groups have been identified as such in instances as are defined in BS 5837 (2005) ie where, by virtue of the fact that trees are in such close proximity they function as a unit, in visual terms, aerodynamically or culturally. The trees surveyed are listed in the Tree Survey Schedule which is accompanied with an excerpt of the plan provided upon which the trees are numbered.

Further explanatory details regarding the survey methodology can be found at Appendix 2.

3 TREE PROTECTION – GENERAL

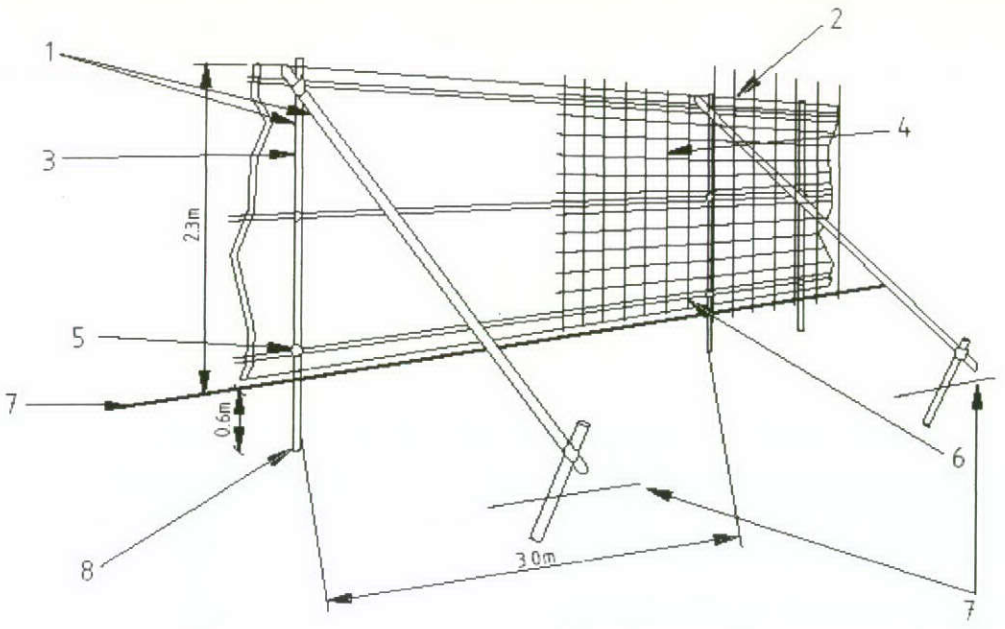
3.1 ***Below Ground Constraints:*** to achieve any development various construction activities are required and great care and consideration needs to be given as to how such activity can proceed whilst avoiding damage to retained trees.

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

British Standard 5837, (2005), Para 3.1.2, '*Trees in Relation to Construction:– Recommendations*', Page 2

3.1.1 There is a direct proportional relationship between a tree's roots and its aerial parts and since the majority of tree roots occur in the upper 600m of the soil horizon this balance can easily be upset by even shallow excavation and/or soil compaction. Root damage can result in instability or premature decline which may not manifest for a number of years, often long after development has ceased. British Standard 3998(1989) '*Recommendations for Tree Work*' Paragraph 14, Note 3, states '*Older or larger trees are more vulnerable than younger or smaller ones, but in all cases the effects of root severance are detrimental.*'

3.1.2 In order to avoid damage to their roots, trees should be protected using protective barriers as are detailed in British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations*' and as illustrated in Figure 1. Such barriers should be erected around the RPA prior to the commencement of any construction activity; it must remain in situ and intact until completion. The area within these barriers should, with some exceptions be considered sacrosanct, and no work should be permitted within them. In an effort to ensure any tree protective barriers remain during construction, it is further advised that they carry signage as per Figure 2 and that the Site Agent is briefed accordingly.



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6 m driven into the ground

Figure 1 - Tree Protection Barrier

BS5837, (2005), '*Trees in Relation to Construction: Recommendations*, Page 13.



Figure 2 - Barrier Notice

3.1.3 In some instances it is possible to offset the RPA by up to 20% and this may afford more room to manouvre should such be necessary. Where it is considered that this offset can be applied it is recorded in the Tree Survey Schedule.

***3.1.4 New Hard Surfacing*:** It is permissible to construct hard surfacing for drives and paths within the RPA, however, it can have implications for tree roots. These implications can be overcome by employing a 'No-dig' construction (see Appendix 3). These techniques result in structures which are load bearing and negate the need for deep excavation.

4 OTHER CONSIDERATIONS

4.1 ***Trees and Wildlife*:** Trees play host to nesting birds many of which are protected by law. All British bat species are also protected and can be found in trees. Great care needs to be taken to avoid disturbance and consideration should be given to the timing of tree works in order to avoid disturbance. Where the presence of protected species is suspected, Natural England should be contacted for advice.

5 RECOMMENDATIONS & CONCLUSIONS

5.1 This report provides guidance for the design team and sets out the constraints relating to the trees on site. Tree survey, RPA and offset RPA detail can be found in the Tree Survey Schedule.

5.2 The new access appears sufficiently distant as to have no arboricultural implications.

6 REFERENCES

- Arboricultural Advisory & Information Service, (1996) '*Driveways Close to Trees*'
- Arboricultural Advisory & Information Service, (2007) '*Through the Trees to Development*'
- British Standard 5837:2005 '*Trees in Relation to Construction: Recommendations.*' BSI
- Mattheck, C. Breloer H., (1994) '*The Body Language of Trees*', Forestry Commission.
- Mattheck, C. (2007), '*Updated Field Guide for Visual Tree Assessment*'
- Strouts R. G., Winter T. G. (1994), '*Diagnosis of Ill Health in Trees*', 2nd Ed., DETR
- Lonsdale D., (1999), '*Principles of Tree Hazard Assessment and Management*', DETR

John A Booth ***MBA, MSc, FICFor, CEnv, FArborA, MIEEM,*** MEWI, DipArb(RFS), CUEW, LCGI(Hort), NDArb.
Director & Principal Consultant
Chartered Arboriculturist, Chartered Environmentalist & Arboricultural Association Registered Consultant

7 Tree Survey Schedule (Explanatory Notes Found at Appendix 2)

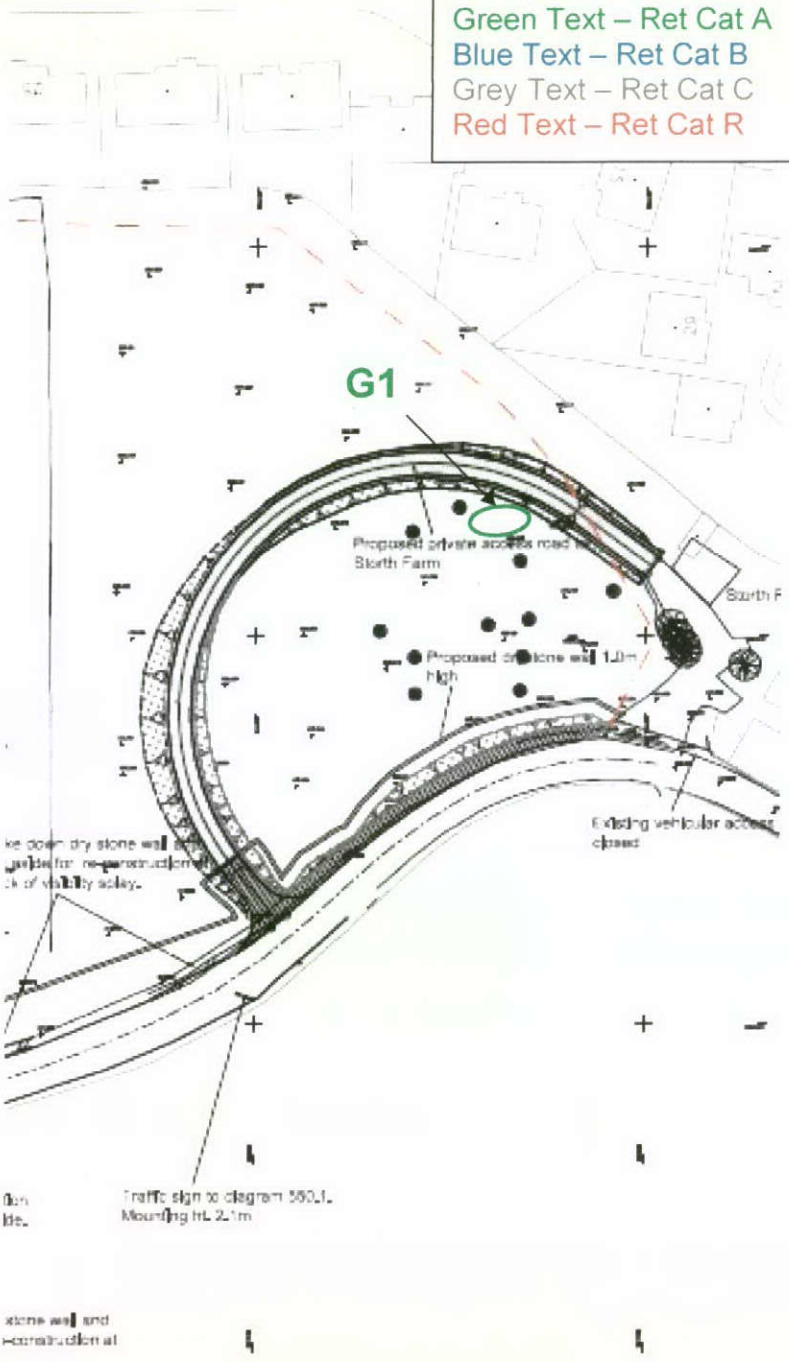
Tree No	Species	Ht (m)	Stem Dia (mm)	Branch Spread (m)				Crown Ht. (m)	Age Class	Cond.	Preliminary Recs.	Life Exp (yrs)	Ret Cat	RPA* (Lin M)	RPA** (Lin M)
				N	E	S	W								
G1	Corsican pine (*Pinus nigra* spp *laricio*)	15 (17)	200	3	3	3	3	0	Yng	A	None at this moment in time	>40	B2	2.4	1.9

* RPA = The minimum distance, measured from the trees trunk, at which tree protective barriers should usually be erected.
** RPA = Offset RPA

Tree Survey Plan (Not to Scale)

Key to Retention Category's

Green Text – Ret Cat A
Blue Text – Ret Cat B
Grey Text – Ret Cat C
Red Text – Ret Cat R



8 APPENDICES

Appendix 1: Curriculum Vitae

John Booth MBA, MSc, FICFor, CEnv, FArborA, MEWI, MIEEM, DipArb(RFS), CUEW, LCGI(Hort), NDArb

PROFESSIONAL QUALIFICATIONS

Sheffield/Hallam University, MSc in Environmental Management (Distinction),2005-2006
Nottingham Trent/Derby Universities, Masters in Business Administration (MBA) 2002-2005
Merrist Wood College, RFS Professional Diploma in Arboriculture, 1992-1993
Merrist Wood College, National Diploma in Arboriculture (Distinction) (B Tec), 1987-1990
Cardiff University/Bond Solon, Expert Witness Certificate, 2007
Lantra Certificate – Professional Tree Inspection, 2007

CAREER

2007 - Director of Sylvanus Arboricultural Consultants Ltd. (www.jabooth.co.uk)
1994 – 2007 - Arboricultural Manager for Derby City Council.
1990 – 1994 - Tree & Landscape Officer for Wycombe DC
1988 – 1989 - Assistant Arboricultural Officer for Bolton MBC
1981 – 1987 - Arborist for Bolton MBC

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

The maintenance of an active CPD record is a strict membership requirement of the following professional organisations to which the author subscribes –

- The Arboricultural Association
- The Institute of Chartered Foresters
- The Institute of Expert Witness's
- The Institute of Ecology and Environmental Management

MEMBERSHIP OF PROFESSIONAL BODIES

Fellow of the Institute of Chartered Foresters
Chartered Environmentalist
Chartered Arboriculturist
Fellow, past National Chair, Trustee and Registered Consultant of the Arboricultural Association
Member of Institute of Ecology and Environmental Management
Licentiate of City & Guilds Institute
Assessor for the Professional Diploma in Arboriculture & Institute of Chartered Foresters Professional Membership applications.

PUBLICATIONS

Numerous articles and papers in academic journals and trade literature.

Appendix 2: Tree Survey Methodology

The survey was undertaken in accordance with the guiding principles of British Standard 5837 (2005) *'Trees in Relation to Construction: Recommendations'*.

Information recorded in the survey includes:

Species – the species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In the case of groups only the principal species are recorded, other minor species may be omitted.

Tree Heights – are estimated in metres. Estimated mature heights are given in brackets. In the case of groups the mean current height is recorded.

Crown Height – the height to the lowest branch is estimated in metres. In the case of groups of trees minimum crown height was recorded.

Trunk Diameters – measured at 1.5 metres above ground and recorded in millimetres to the nearest 10mm. However, where the trunk of any tree breaks below 1.5 metres it is considered a multi-stemmed tree and, in accordance with British Standard 5837 (2005), *'Trees in Relation to Construction: Recommendations'* it is measured immediately above the root flare. In the case of groups of trees the maximum diameter was recorded.

Crown Radius – was recorded in metres along each of the cardinal points. In the case of groups of trees the maximum peripheral spread was recorded.

The ***Condition*** of the trees is based upon a preliminary assessment categorised thus:

A - Good

B - Fair

C - Poor

D - Very Poor/Dead

In the case of groups the category awarded is that typical of the group.

Life Expectancy – estimated; ie less than 10 years, 10-20 years, 20-40 years, more than 40 years.

Preliminary Recommendations – works required regardless of development proposals.

A ***Retention Category*** is given as follows which corresponds with Table 1 (See Appendix 2) of British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations* ie:

- **A** - Trees of a high quality and value, including public visual amenity value (Sub categories 1, 2, 3). It is usual for such trees to be retained unless the planning merits of a particular scheme or layout over-ride.

- **B** - Trees of moderate quality and value, including public visual amenity value (Sub categories 1, 2, 3). Such trees should be considered for retention.

- **C** - Trees with a stem diameter of less than 150mm or which are of low quality and value, including public visual amenity value (Sub categories 1, 2, 3). ***The retention of Category C trees should not be allowed to impose a constraint on development.*** Trees with a stem diameter of less than 150mm should be considered for transplanting.

- **R** - Trees in such a condition that they should be removed.

Sub-categories are also awarded and reflect where the value of a particular tree lies ie:

- **Sub-category 1** – awarded in recognition of arboricultural value,
- **Sub-category 2** – awarded in recognition of landscape value,
- **Sub-category 3** – awarded in recognition of cultural value, including historic value.

All sub-categories carry equal weighting and some trees may qualify in more than one category, although they will not accrue additional value if they do.

It must be noted that Retention Categories are awarded purely on arboricultural/amenity grounds and that in some instances the planning merits of a particular scheme may well

over-ride the retention of even those trees qualifying for Retention Category 'A'.

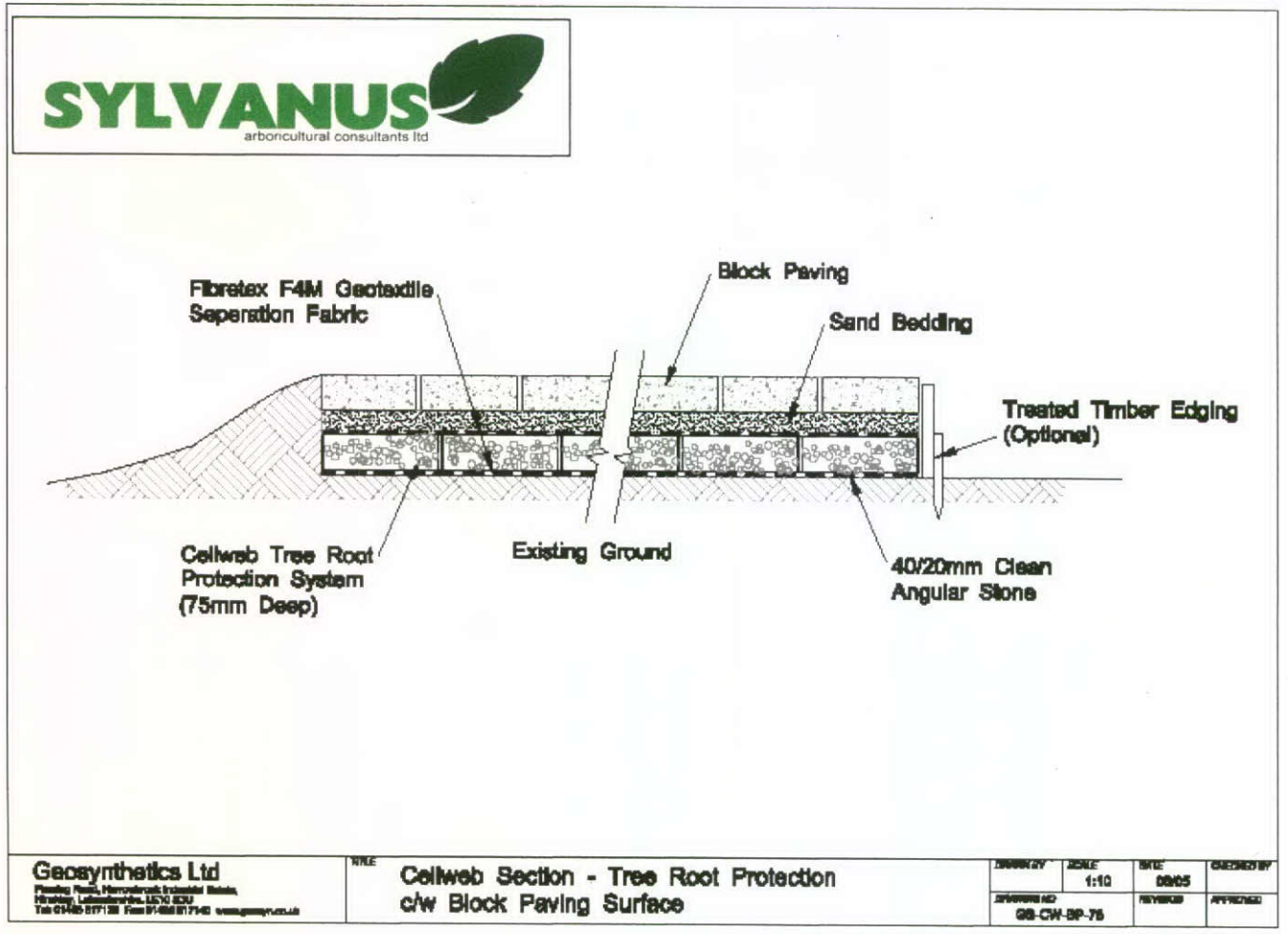
Root Protection Area (RPA) – In respect of all trees surveyed the RPA has been calculated and is given in the Tree Survey Schedule. The figures given represents both the radial distance and, where applicable, the offset radial distance, from the trees trunk, at which the barriers should be erected.

The RPA is calculated thus:

Number of Stems	**Calculation**	
Single Stem Tree	RPA (m^2) =	$\frac{(\text{stem diameter (mm) @ 1.5m x 12})^2 \times 3.142}{(\quad 1\,000 \quad)}$
Tree with more than one stem arising below 1.5m above ground level	RPA (m^2) =	$\frac{(\text{Basal diameter (measured immediately above root flare (mm) x 10)}^2 \times 3.142}{1\,000}$

British Standard 5837, (2005), '*Trees in Relation to Construction: Recommendations*', Page 8

Appendix 3: 'No-Dig' Cellular Confinement System
Example Specification



'No-dig' Installation Methodology

- Lay G4 Geotextile over existing ground between pegged timber edgings if used, ensuring overlaps of 300mm minimum. Temporarily retain G4 Geotextile with either stakes or weights.

- Install 8 Number 12mm diameter steel pins across the area to be covered by one panel of the confinement system (the product). The pins shall be orientated in order that each panel of the product may be laid over and remain in an expanded state.

- Install the product over steel pins; where necessary, remove surplus product with a craft knife.

- Immediately adjacent panels of the product shall be connected by providing four staples at each overlap.

- The expanded product panels shall be infilled with 40/20mm clean angular stone using a Mini Excavator, under the direction of a chartered arboriculturist. The product shall be overfilled by 50mm to create a surcharge over the product which protects the leading edges of the cells. The Mini Excavator may track over areas of infilled product panels only ie it must not be operated/driven/stored outside the area over which the product is installed and within the RPA.

- The infilled aggregate shall be rolled and whacked to ensure compaction.

- Apply final surface eg block paving, sand, road scrapings etc.

SYLVANUS
arboricultural consultants ltd



John A Booth MBA, MSc, FICFor, CEnv, FArborA, MIEEM,
MEWI, DipArb(RFS), CUEW, LCGI(Hort), NDArb.
Director & Principal Consultant
Chartered Arboriculturist & Chartered Environmentalist

242 Highfields Park
Broadway
Derby
DE22 1JY
Tel (01332) 556307
Mobile: 07783 968714
Email: info@jabooth.co.uk
Web: www.jabooth.co.uk