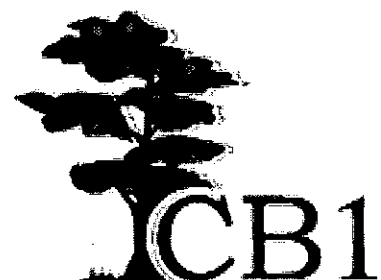
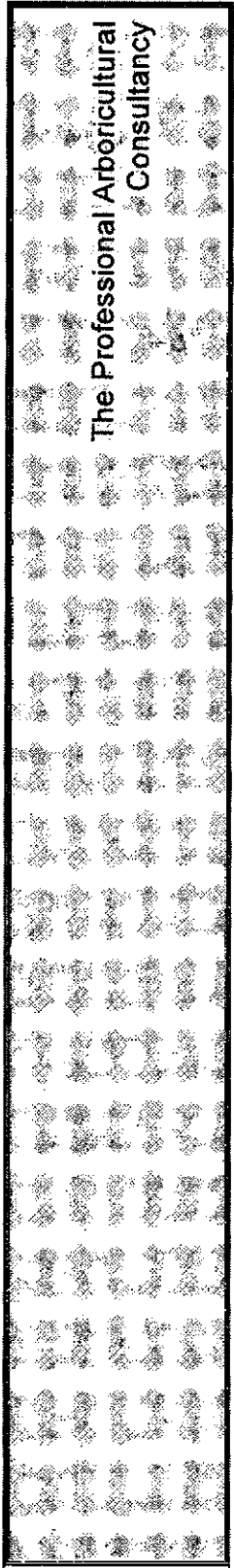


ARUN DISTRICT COUNCIL				
No.	A	158	08	
Received	23-12-08			





TREE SURVEY NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2005 and current good arboricultural practice.

- > Each tree has been numbered and, where instructed, for future identification on site, has been tagged using small durable metal or plastic tags.
- > Due to variations of existing ground levels through the site, height dimensions are estimated and are given in metres. Accurate heights, measured with the aid of optical instruments can be provided where instructed.
- > Trunk/stem diameters are measured in mm at 1.5 metres above ground level, or immediately above the root flare for multi-stemmed trees, using a standard measuring tape as defined by British Standards, unless otherwise stated.
- > Estimated branch spread is taken in metres from the centre of the trunk, at the four cardinal points of a compass, to achieve an accurate representation of the crown shape which will be recorded on the tree survey plan.
- > An assessment of a tree's age classification is made in terms of its maturity within the site's landscape and defined as:

Y	=	young trees
MA	=	middle aged trees
M	=	mature trees
OM	=	over-mature trees
V	=	veteran

- > An assessment of a tree's physiological condition is defined as:

Good	=	fully functioning biological system showing average vitality i.e. normal bud growth, leaf size, crown density and wound closure
Fair	=	fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure
Poor	=	a biological system with limited functionality showing significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure
Dead	=	dead

- An assessment of a tree's structural condition is defined as:

Good	=	no significant structural defects
Fair	=	structural defects which could be alleviated through remedial tree surgery or management practices
Poor	=	structural defects which cannot be alleviated through tree surgery or management practices
Dead	=	dead

- An assessment of a tree's future life expectancy is defined as: <10, 10-20, 20-40 or >40 years.

Categorisation of Trees

The category for each tree is assessed using the recommendations of BS5837:2005. The assessment has not considered any site-specific development proposals, but will have considered any changes on or off-site which may have an effect on the conditions surrounding the surveyed trees.

The trees have been classified into one of the following categories (and one or more sub-categories [this will however not increase the value of the tree]) and are indicated on the associated drawings by colours as indicated.

Category	1 = Mainly arboricultural values	2 = Mainly landscape values	3 = Mainly cultural values	Identification colour on plan
Category R Trees in such a condition that any value would be lost within 10 years or should be removed for reasons of sound arboricultural management				DARK RED
Category A Trees of high quality and value: in such a condition as to make a substantial contribution (40 years or more is recommended)	Trees that are a particularly good example of their species, rare or unusual, essential components of groups or of formal or semi-formal features.	Trees, groups or woodlands providing definite screening of views in and out of the site, or softening effect to the locality, or those of particular visual importance.	Trees, groups or woodlands of significant conservation, historical or other value (e.g. veteran or wood-pasture)	LIGHT GREEN

Category B				MID BLUE	
Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years.	Trees which might be included in the A category, but are downgraded due to impaired conditions/remediable defects.	Trees in numbers, that collectively form a distinct landscape feature but are not individually an essential component of a formal or semi-formal feature. These are likely to be trees situated mainly within the site with little visual impact on the surrounding locality.	Trees with clearly identifiable conservation or other cultural benefits.		
Category C				GREY	
Trees of low quality and value which might remain for a minimum of 10 years or young trees with stems of less than 150mm diameter.	Trees not qualifying in higher categories	Trees in groups or woodlands without having significant landscape value or offering low or temporary screening value	Trees with very limited conservation or other cultural benefits		

Clients are advised that Tree Surveys are a basic data collection exercise and record of tree condition at the time of survey. It will identify any visible signs of ill-health or major defects, advising a further detailed investigation where appropriate. This will most often take the form of a request for either "full ground level inspection" or "climbing inspection required". There may also be a further reference to the need for "decay detection equipment" to aid diagnosis. A tree survey does not include a comprehensive schedule or specification of remedial tree works, but may contain a guide to the work which might be undertaken by a prudent tree owner, purely for reasons of health and safety.

A Tree Survey should not be confused with a Tree Inspection or Arboricultural Implication Assessment, which are totally separate exercises.

TREE SURVEY SCHEDULE				
	Client:	J S Bloor (Newbury) Ltd	Site:	Station Road, Angmering
	Date:	27 February 2009	Consultant:	Graham Sear TechCert(Arbor.A),ND Arb
	Tagged:	No	Weather:	Slightly overcast

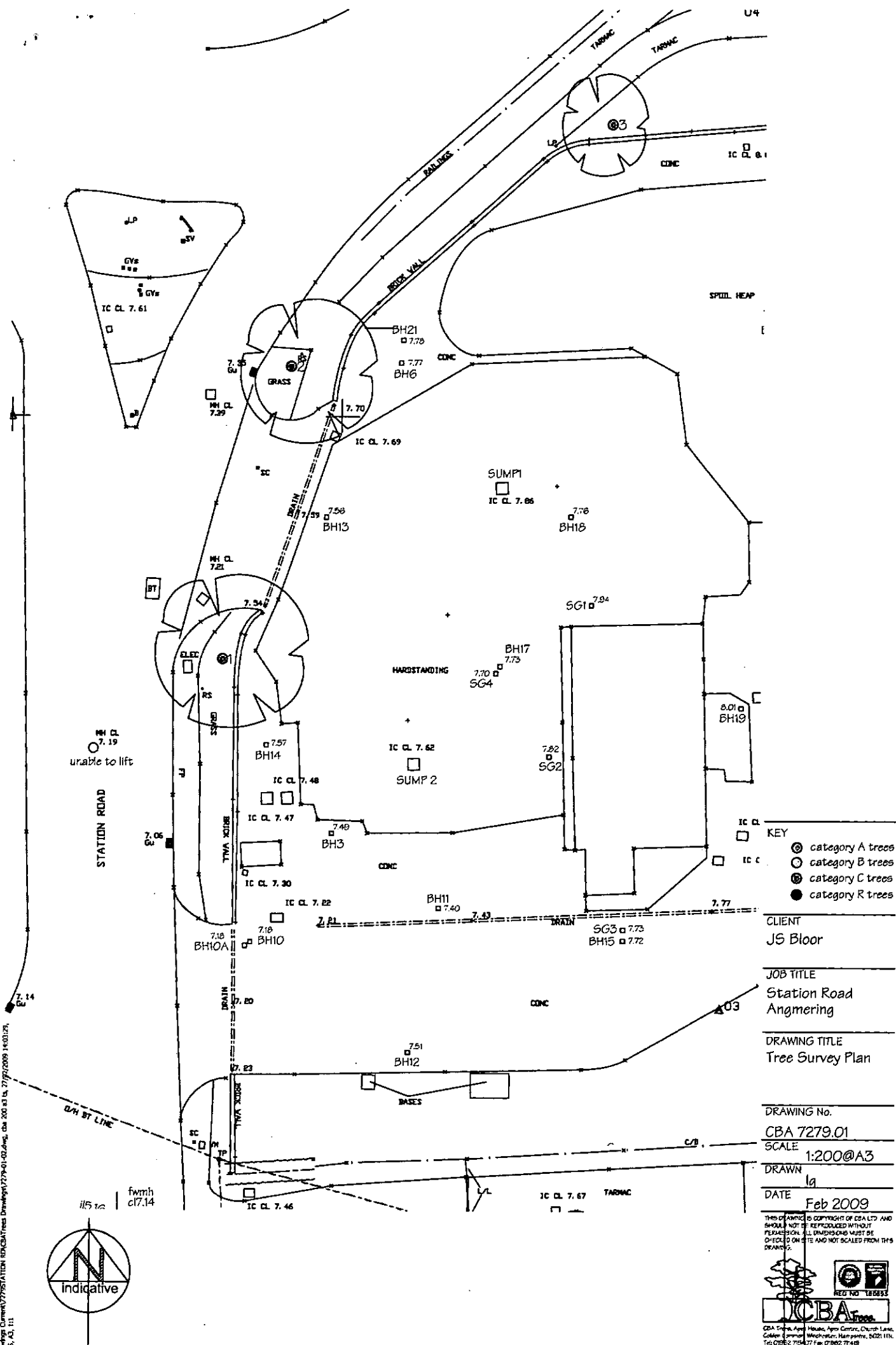
Note:-

1. This is not a Tree Works Schedule. Any preliminary management recommendations are listed in the interests of health and safety and should be carried out by a prudent tree owner.

Tree No	Species	Ht (m)	Single/Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m) N E S W	Ht of Crown (m) N E S W	Age	Physiological Condition	Structural Condition and Relevant Comments	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
1	Silver Maple <i>Acer saccharinum</i>	11	S	730	5.0 5.0 4.0 4.0	2.0 2.0 2.0 2.0	M	Good	Fair Off-site tree Basal suckers Epicormics on trunk and in crown Previously pollarded at 2m above ground level Multi-stemmed at 2m above ground level Metalwork occluded in trunk at 1m above ground level on East side Some lower limbs previously pruned back on East side Street tree	None required at time of survey	10-20	C1
2	Fasigiate Hornbeam <i>Carpinus betulus 'Pyramidalis'</i>	9	MS	580	4.0 5.0 4.5 3.0	1.5 1.5 2.0 2.0	M	Good	Fair Off-site tree Mechanical damage to exposed surface roots Multi-stemmed at 1.2m above ground level with included bark Epicormics on trunk Old pruning wounds on trunk and in crown occluding Street tree	None required at time of survey	10-20	C1

CBA7279

Tree No	Species	Ht (m)	Single/Multi-Stemmed (S or MS)	Stem Diam (mm)	Branch Spread (m) N E S W	Ht of Crown (m) N E S W	Age	Physio-logical Condition	Structural Condition and Relevant Comments	Preliminary Management Recommendations	Est. Rem. Contrib. (Vrs)	Cat
3	Apple <i>Malus spp</i>	9	S	420	3.0 2.0 3.0 3.0	2.0 2.0 2.0 2.0	M	Fair	Fair Off-site tree Street tree Multi-stemmed at 1.7m above ground level Brambles around lower stem Old pruning wounds on trunk and in crown occluding Branches to South previously pruned back Epicormics in crown Minor deadwood in crown	None required at time of survey	10-20	C1



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ICBA_{Free}
CBA Trainers, Agents, House, Agent Centre, Church Lane
Golden Common, Winchester, Hampshire, SO21 1TB
Tel: 01753 275547 Fax: 01753 274108



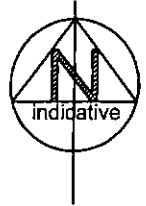
TREE ROOT PROTECTION AREA SCHEDULE			
	Client:	J S Bloor (Newbury) Ltd	Site:
	Date:	27 February 2009	Consultant:
			Graham Sear TechCert(Arbor.A), ND Arb

Notes:

1. This is an assessment of the Root Protection Area (RPA) required, based on the individual tree data collected and Table 2 of BS5837:2005.
2. At this juncture this document is for your sole guidance and ongoing discussions purposes only and is not intended for general circulation, as it assumes that all but the 'R' trees will be retained, which clearly may not be the case.

Tree No	Species	Category	Single/ Multi-Stemmed (S or MS)	Stem Diameter (mm)	Initial Linear Root Protection Distance (Radius m)	Root Protection Area (m ²)
1	Silver Maple	C1	S	730	8.76	241.11
2	Fastigate Hornbeam	C1	MS	580	5.80	105.70
3	Apple	C1	S	420	5.04	79.81





Existing
site access
adapted

Bin collection
point

access to rear parking court

new dense planting to act
as acoustic barrier

KEY
 (A) category A trees
 (B) category B trees
 (C) category C trees
 (R) category R trees

CLIENT
 JS Bloor

JOB TITLE
 Station Road
 Angmering

DRAWING TITLE
 Tree Protection Plan

DRAWING No.

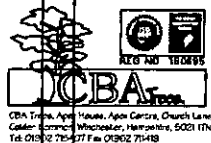
CBA 7279.03

SCALE
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DATE
 March 2009

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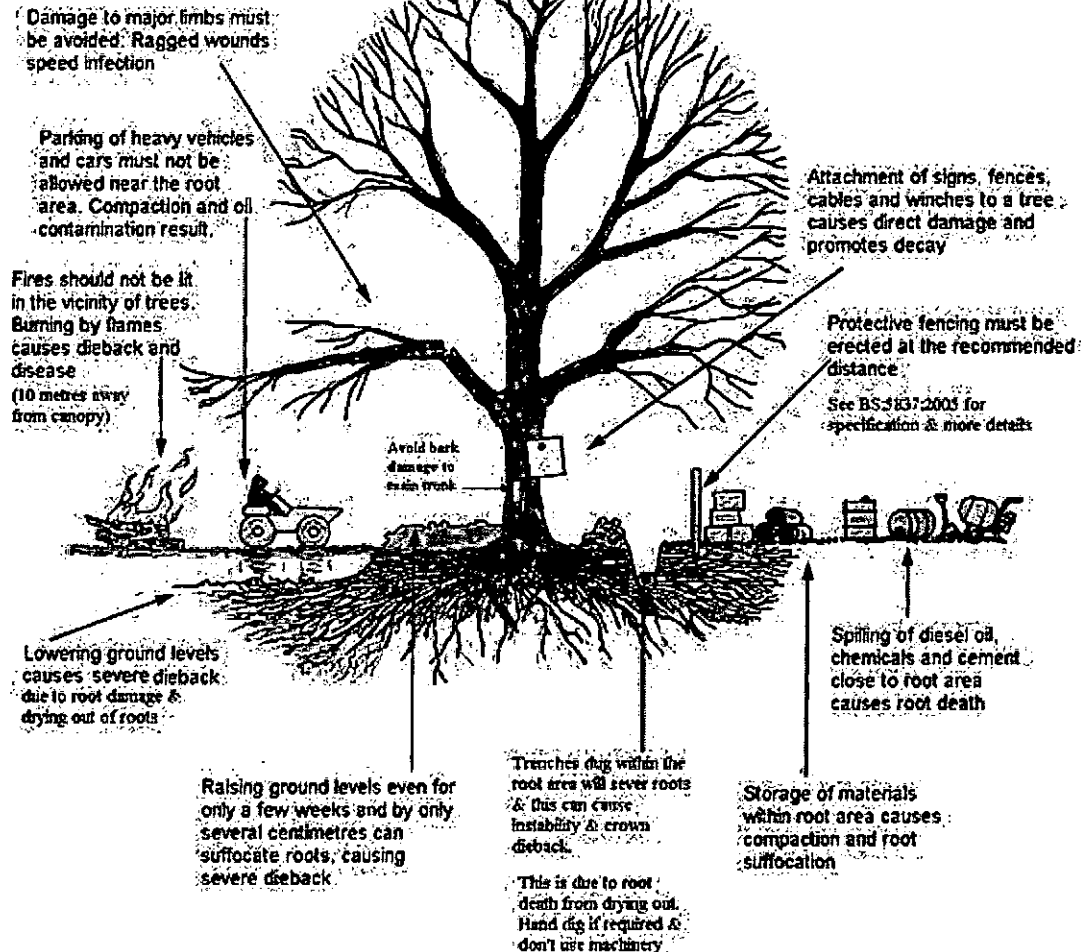
CBA Trees, Apple House, Apple Centre, Church Lane,
 Golden Square, Winchester, Hampshire, SO3 1TH.
 Tel: 01962 725 277 Fax: 01962 71418

- DP like trees to be retained and protected in accordance with BS5837:2005
- Calculated Root Protection Area (CPA)
- Location of protective fencing to form the Construction Exclusion Zone (CEZ)
- Location of protective fencing during special construction phases, to be moved back only when the special area of work is to be carried out in accordance with CBA Trees Arboricultural Development Statement (ADS) March 2009
- Ground protection required for overloading under 17t



Common causes of Tree Death

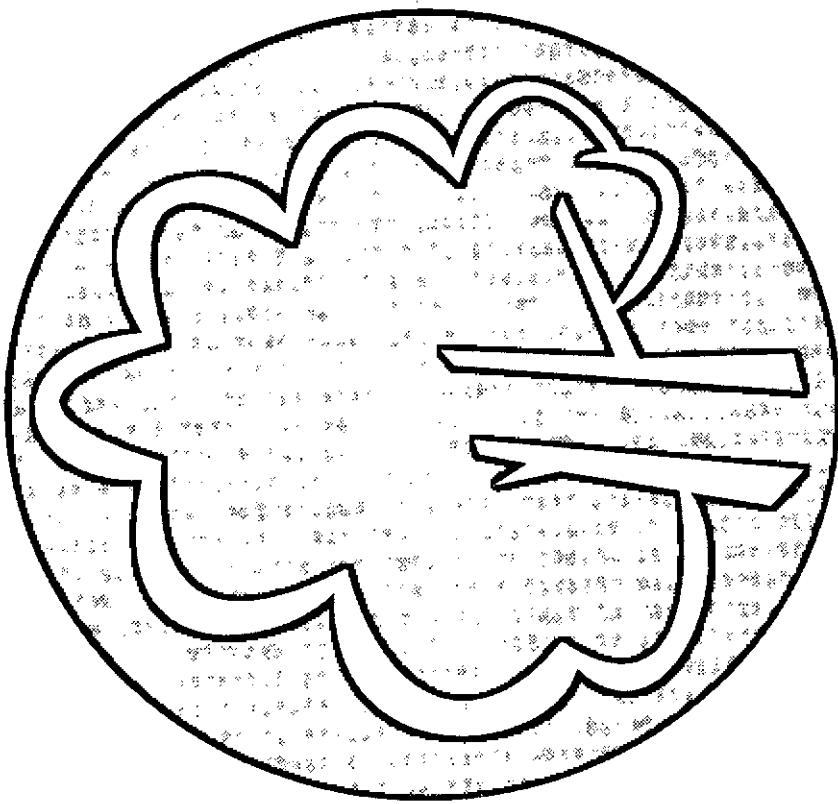
The use of properly positioned protective fencing can prevent tree deaths occurring.



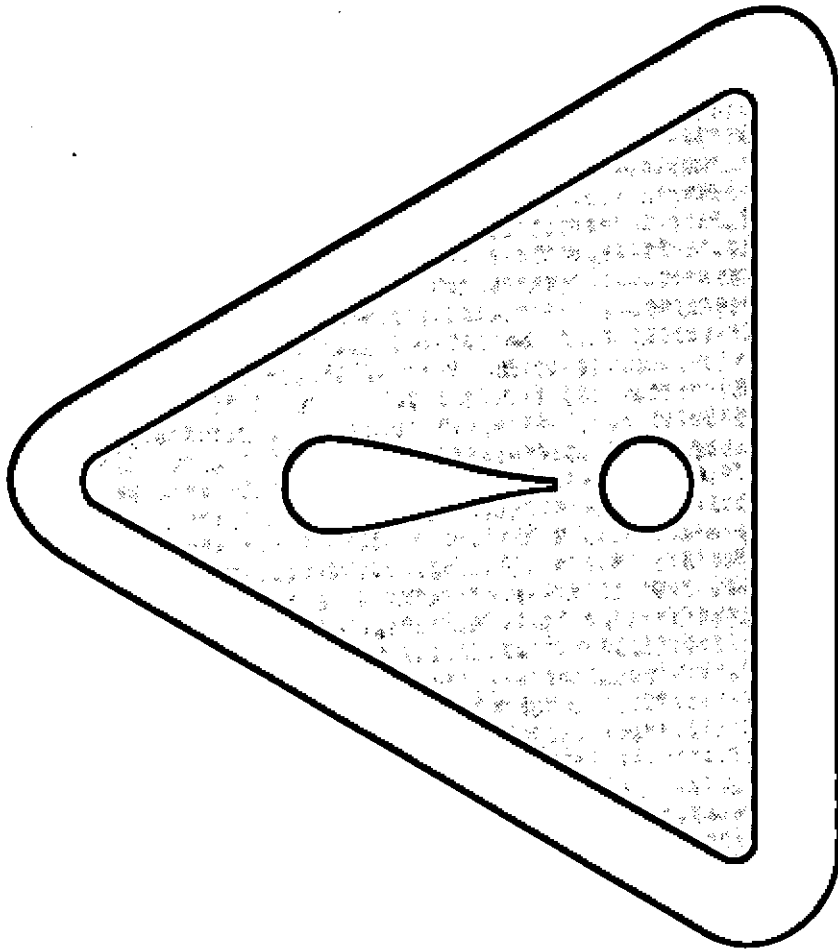
Please use copies of this as an on-site poster for personnel

(Source: Arborecultural Information Exchange website, 2005)





**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**

TREES AT _____ :

SUMMARY OF

TREE PROTECTION MEASURES

Introduction

This leaflet shall be issued to all site personnel as part of their induction briefing.

It describes in summary form the precautions that site personnel shall at all times follow, to ensure that the existing trees on the site come to no harm.

The precautions described are neither arbitrary nor reducible and must be adhered to in full.

These precautions are necessary because unprotected trees are very vulnerable to damage during demolition and construction works.

Furthermore, many of the trees on the site are under **LEGAL PROTECTION** and damaging them can result in heavy fines.

Two common misconceptions about trees:

MYTH: Trees have deep taproots and so shallow excavations will not harm the tree.

FACT: 90% of all tree's roots are found in the top 600mm of soil; all excavations near to trees are likely to cause root damage which can kill the tree.

MYTH: Trees will quickly heal over any bark wound, with no ill effect.

FACT: Bark wounds take years to heal and larger ones never do; missing bark can lead to disease and even the death of the tree.



Tree Protection

All trees adjacent to unsupervised work areas have been protected by fencing.

This fencing must be respected at all times and no attempts shall be made to damage, bypass or ignore it.

In areas designated for supervised working, no works shall be undertaken without the supervisor being present or without him/her issuing a "carry on" chit.

Prohibitions Adjacent to Trees

Inside the exclusion area of the tree protection, the following prohibitions shall apply.

- No digging or scraping
- No storage of plant or materials
- No vehicular access
- No fire lighting
- No handling, discharge or spillage or any chemical substance
- No water-logging

In addition to the above, further precautions shall be taken near to trees.

- A 10m separation distance shall be observed between trees and any substance injurious to their health, including fuels, oil, bitumen, cement (including washings) builders' sand, concrete mixing and other chemicals.
- No fire shall be lit such that flames come within 5m of any foliage; this shall be taken to mean a fire separation distance to the leaved of 20m.

Avoiding Damage to Stem and Branches

Care shall be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights, can operate without coming into contact with trees.

Consequently, any transit or traverse of plant in proximity to trees shall be conducted under the supervision of a spotter to ensure that adequate clearance is at all times maintained.

In some circumstances, it may be impossible to achieve this, necessitating the pruning of the tree.

If this is necessary, a specialist team shall be called in following referral to the project Arboriculturist.

No tree pruning shall be undertaken by demolition or construction personnel.

Asking for Help

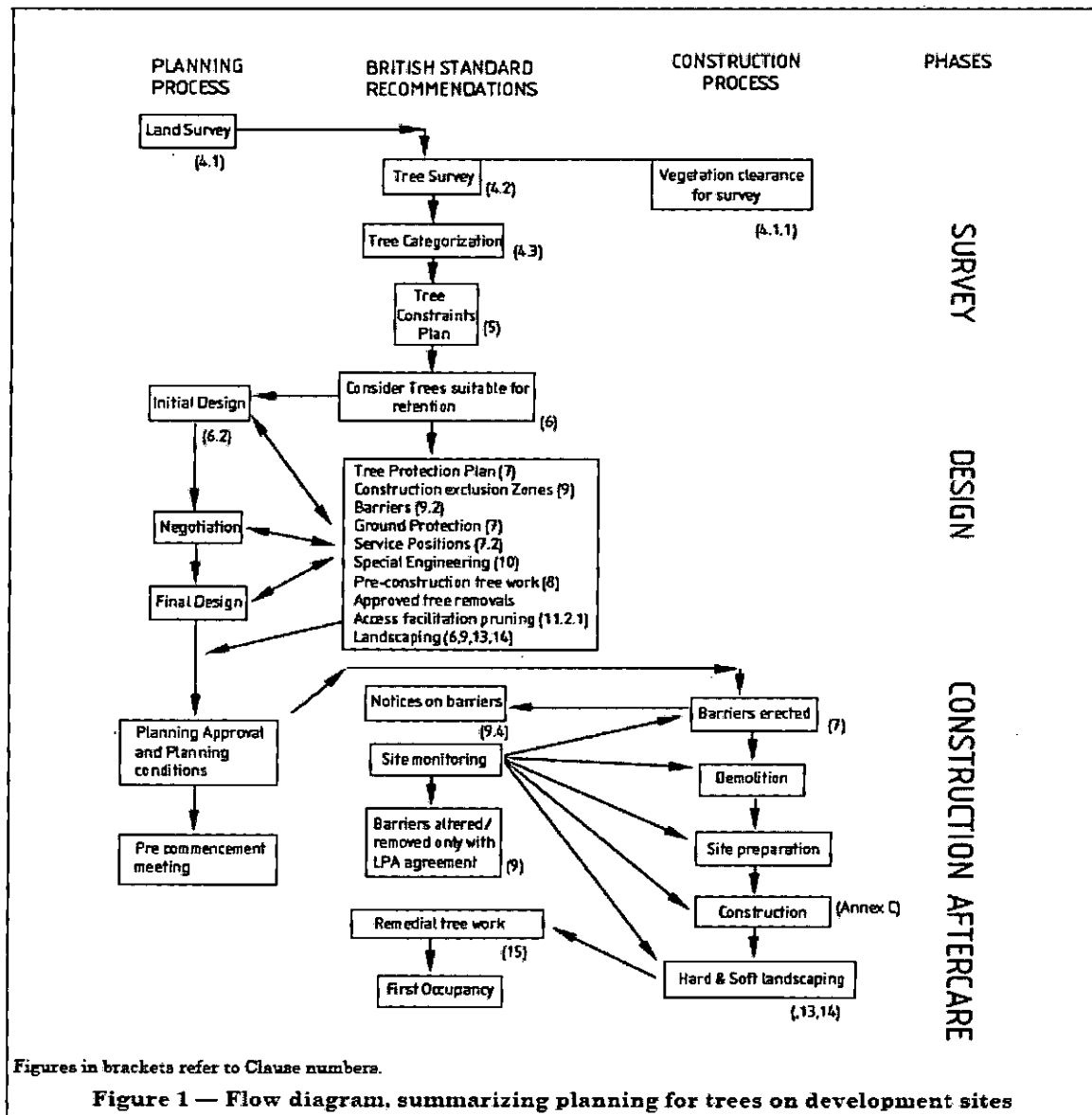
If you see any damage to a tree or its protective fencing, or if you need a tree pruning for plant clearance, contact **CBA Trees** as follows:

Office Telephone: 01962 715407

REMEMBER:

**ALL TREE DAMAGE IS
AVOIDABLE –
SO AVOID IT!**





3.2.2 The layout of this standard follows the sequence of the flow diagram in Figure 1. Following the land survey (see 4.1) the existing trees on and adjacent to the site should be surveyed (see 4.2) and categorized (see 4.3). The constraints these trees pose should be plotted on a tree constraints plan (see Clause 5) and those selected for retention should be plotted on a tree protection plan as a result of the negotiations within the design process (see Clause 7). Areas for new landscaping should be identified at this time (see 6.2.2). The position of all excavations and any special engineering required can be specified in the form of arboricultural method statements. Once work is due to begin on site the arboriculturist should meet the site agent at a pre start meeting to ensure the correct erection of barriers and ground protection forming the construction exclusion zone (see Clause 9).





UTILITIES SERVICE CONNECTION GENERAL METHOD STATEMENT

The location of any new service routes will not be within the Root Protection Area of the trees to be retained within and around the site.

Any existing services located within the Root Protection Area of trees to be retained, which require excavation must be done so using a soil pick initially to look for any large roots before proceeding with a mini digger that will be tracked.

All proposed service installations should be carried out in accordance with the guidelines set out in NJUG Publication Volume 4, and Section 11.3.5 and 11.7 of BS5837:2005. Great care should be taken to preserve and work around roots greater than 25mm in diameter, and clusters of smaller roots avoiding damage to bark. Where it is necessary to sever roots greater than 25mm in diameter, arboricultural advice must be sought. Where smaller roots must be severed, they should be cut back cleanly using secateurs or a sharp pruning saw.

Backfilling of initial trenches at either end of the proposed service route should be carried out using the excavated soil, which should be worked in around roots and lightly "tamped" not compacted, and respecting the original soil profile. The backfill should be left proud of surrounding levels to allow for settlement.

Trenches must not be left open overnight, and arboricultural supervision is to be provided during excavation of trenches through Root Protection Areas. If the trench is to remain open for any period of time during the day and the weather is hot, to prevent the roots from drying out, it is advised that moist Hessian sacking is wrapped around the exposed roots and/or trench, to prevent such desiccation from occurring or temperature changes. The reason for this is to reduce the potential for root tip death through lack of moisture.

The importance of tree roots is set out below, as per the guidance from within the National Joint Utilities Group Publication Volume 4 (2007).

Importance of tree roots

Tree roots are generally found in the top 600mm of soil, extending radially in any direction for distances frequently in excess of the tree's height. Excavation or other works within this area are liable to damage the roots. They often grow out further than the tree's height. If roots are damaged;

1. **Close to the trunk.** The anchorage and stability of the tree may be adversely affected rendering the tree immediately hazardous.
2. **Anywhere along there length.** The distal portion including the fine roots they serve, will be destroyed. Damage to fine roots by severance of a main root, or by compaction or alteration of ground levels, will prevent fine roots from absorbing the water and nutrients which are essential for the well-being, growth and anchorage of the tree.
3. **By successive excavations.** Multi-utility excavations close to a tree can cumulatively damage a root system.

Even a short distance (3m) from a large mature tree, most roots will be less than 10mm diameter, but these may extend to well beyond the branch spread of the tree. A mass of fine roots, less than 1mm diameter, develop off all parts of this root system. These fine roots absorb the water and nutrients which are essential for the growth of the tree. The main structural roots (close to the trunk); develop as the tree grows in response to the need for the tree to have physical stability.

Beyond these major roots, root growth is influenced by the availability of water, air and nutrients in the soil. Disturbance of soil provides ideal conditions for root growth. Root systems can be damaged by:-

1. **The severance of a root**, for example by trenching will destroy all parts of the root beyond that point. Even roots less than 10mm in diameter may be serving the fine roots over a wide area. The larger the root severed, the greater the impact on the tree.
2. **Damage to the bark on the root.** The bark protects the root from decay, and is also essential for further root growth. It is loosely attached and easily damaged. If damage to the bark extends around the whole circumference, the root beyond that point will be killed.
3. **Compaction of the soil.** Incidental compaction may occur from storage of materials and / or the passing of heavy equipment over the roots. This can restrict or even prevent gaseous diffusion through the soil, and thereby asphyxiate the roots. The roots must have oxygen for survival, growth and effective functioning.
4. **Alterations in soil level.** Lowering the level will strip out the mass of roots near the surface. Raising levels will have the same effect as soil compaction.
5. **The application of herbicide.** Frequently used to clear weed growth on operational land (e.g. substations). The wide-ranging root system of a tree may extend into the operational land and absorb herbicides, which have been applied to the ground. Herbicide absorbed in one part of the root system can kill the whole tree.
Note: The selection and application of herbicides must be undertaken by a Competent person in accordance with Control of Substances Hazardous to Health (COSHH) regulation.
6. **Spillage of oils or other materials**, (e.g. diesel oil, cement, resins spillage can permeate into the soil and damage root systems.

(As per NJUG Volume 4)

SOIL PICK GUIDANCE

The Soil Pick is a selective soil excavator. Selective in the sense that it fractures, pulverizes and displaces porous and semi-porous soils at a high rate of speed, yet leaves non-porous objects unaffected. The Soil Pick excavates soil without risk of damaging buried utilities. The Soil Pick employs converging/diverging nozzle technology to accelerate compressed air to supersonic speed (to 1500 mph). The high velocity air stream travels approximately 4 inches from the distal end of the Soil Pick - "the cutting edge" - before decompressing to atmospheric pressure with sufficient violence to pulverize and displace soil.

What separates the MBW Soil Pick from other excavation tools employing converging/diverging nozzle technology? The answer is safety. MBW holds US and international patents on the combination of dielectric and non-sparking characteristics embodied in the Soil Pick. Non-conductive, non-sparking tools are of obvious benefit to those working in environments that may be gas enriched and/or are in close proximity to live electric lines. The length of a supersonic excavator's "cutting edge" can be shortened or lengthened by changing the configuration of the tool's converging/diverging nozzle. For reasons of safety, MBW has chosen to standardize its cutting edge at approximately 4 inches. A 4" cutting edge is long enough to facilitate rapid excavation, yet short enough to minimize the potential for personal injury caused by misuse and misdirection of the cutting edge. Loosening of soil beyond the area of intended excavation is minimized. Scatter of soil particles, rock and pavement debris is minimized, and the operator is better able to control the air stream when excavating in the immediate area of a gas leak.

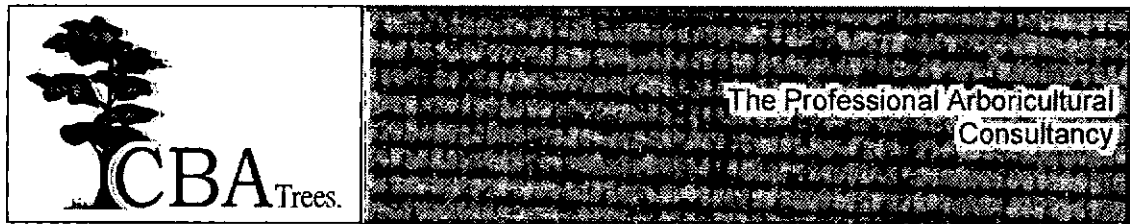
The Soil Pick's non-sparking, brass nozzle is relatively heavy (4.2 ounces). It is imperative that the nozzle does not detach from the barrel assembly to become a high velocity projectile. For this reason, the nozzle is threaded into the barrel assembly and permanently cemented in place with Hydraulic Loctite. Some manufacturers promote easily exchanged nozzles. MBW's view is that easy exchange of nozzles brings with it an unacceptable trade-off in safety. The Soil Pick requires no periodic maintenance. A pressure gauge on the handle assembly advises the operator if the tool is working at acceptable pressure. The Soil Pick weighs 6.5 lbs., has zero hand/arm vibration, and can be used for extended periods without fatigue.

Specifications	MODEL SP-125
Weight	6.5 lb (3 kg)
Length	52 in (132 cm)
Barrel Diameter	1.25 in (3 cm)
Airstream Velocity	1475 mph (2375 km/h)
Effective Cutting Depth*	4 in (10 cm)
Air Volume	125 cfm (3540 l/min)
Pressure at tool inlet	100 psi (6.9 bar)
Claw Type Quick Connector	3/4 in (2 cm)
Extension Tube	42 in (107 cm) part # 03848
Extension Tube	21 in (53 cm) part # 03849
Cart assembly for crack cleaning	7.5 in (19 cm) part # 11542

* dependent on soil type () Metric Measurements.
Specifications subject to change without notice.







**QUALIFICATIONS OF GRAHAM SEAR
SENIOR ARBORICULTURAL SURVEYOR
CBA TREES**

Graham Sear, *TechCert (Arbor A)*, *ND.Arb*, is a mature surveyor with several years experience in Local Authority work undertaking large street and health and safety audits, as well as tree condition surveys. He joined CBA Trees in November 2005 as a trainee surveyor/consultant, and has become a reliable and conscientious member of the surveying team.

Graham is now undertaking consultancy work on behalf of CBA's clients, including Feasibility Studies, Arboricultural Implications Assessments and Method Statements in accordance with BS5837:2005. Graham has recently completed his studies at Merrist Wood College where he successfully attained the *TechCert(Arbor.A)* qualification with distinction.

It is anticipated that Graham will resume his studies towards Diploma level, within the coming year or so.

