



Christopher Hoare Tree Services Ltd

Arboricultural Contracting & Consultancy

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Prepared for:
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The statements made in this report do not take account of extreme weather events, rooting environment alterations, accidental damage, vandalism or works not carried out to industry recognised standards or best practice. Christopher Hoare Tree Services Ltd does not accept any liability associated with these instances. The validity of this report ceases after two years from the instance of the initial site inspection, or if the site conditions change as a result of unspecified works affecting the subject tree/s.



Client

Mr Simon O'Hea

Site address

39

Havant Road

Emsworth

Hampshire

PO10 7JD

1. Introduction

1.1. Instruction

- 1.1.1. I have prepared a simple tree planting specification document in response to a request from Havant Borough Council.
- 1.1.2. This document will provide a preliminary outline of the methodologies which should be adopted for tree planting at the aforementioned site.
- 1.1.3. I have also created a 3yr aftercare plan for any establishing trees planted at the site. This plan details the methods which should be adopted in order care for and ensure successful establishment of the trees.

1.2. Scope

- 1.2.1. This report is only associated with the arboricultural aspects of the site and does not relate to ecological or archaeological matters which may be present. The conclusions, recommendations, and discussions presented in this report have been made using my own experience and arboricultural training.

1.3. Document disclosure

- 1.3.1. This report has been compiled as an additional document to be read alongside the existing Arboricultural Report (Q12978/PTS-AIA-AMS/V2) which has been created in support of a planning application/s at the aforementioned site

1.4. Additional background information

- 1.4.1. The species of tree/s which are to be selected for replanting at the site are not yet decided. However, this document will clear and concise for the successful planting and establishment of any tree selected for the site.
- 1.4.2. I have recommended a number of tree species to you via email which have high amenity/ornamental value. I have also selected these trees due to their modest mature dimensions after considering the site-specific constraints. These constraints include soil type, proximity of buildings and likely foundation types.



1.5. Important tree information

Trees provide a wide range of benefits which include the following points.

1.5.1. Climate change contributions

- Trees remove CO₂ by providing a carbon sink.
- Trees provide low carbon options for building and energy.
- Trees can attenuate heavy rainfall and slow floodwater run-off.
- Trees moderate heat build-up in the urban environment through transpiration, sun reflection and by providing shade.

1.5.2. Environmental advantages

- Trees provide numerous aesthetic contributions by softening the urban environment and making it more attractive.
- Tree root systems are able to preserve valuable soil resources and reduce soil erosion.
- The filtering capabilities of trees can improve water quality.
- Trees have significant wildlife contributions as they increase biodiversity and bring wildlife into the urban environment.

1.5.3. Economic dividends

- Trees provide a range of saleable products such as firewood/woodchip, compost/leaf litter mulch, timber and fruit.
- Trees require low maintenance than the wider green space infrastructure.
- A tree populated environment has been shown to make people more productive, improve job satisfaction, increase property value and encourage retail.

1.5.4. Social benefits

- Trees provide a range of health benefits such as reduced asthma, lower risk of skin cancer, quicker patient recovery times, reduced stress, improved mental health and wellbeing and they encourage exercise.
- Trees can assist in urban living by improving the energy efficiency of buildings, baffling noise levels, reducing crime levels and providing protection in winter.
- Increasing social values by creating a more harmonious environment and a heightened sense of pride in the greater community.

1.5.5. Factors affecting successful tree establishment

Successful tree establishment relies on a number of factors to ensure the continued survival into the long term. Lack of aftercare and preparation can often lead to early tree mortality which has subsequent economic impacts. *"As early as the 1980s failure rates for amenity tree planting were commonly recorded as 30%, but failure rates of 70% were reached with disturbing regularity during the first growing season"* (Gilbertson and Bradshaw, 1985, 1990).

A wide range of abiotic influences can lead to unsuccessful tree establishment. These include:

- Local climate and the trees tolerance to adapt to them.
- The quality of tree stock being used i.e. tree specification, nursery practice and tree handling.
- The trees rooting environment i.e. soil ecology, soil volume and soil structure.
- Planting and post-planting i.e. planting practice, canopy management and rhizosphere maintenance.



2. Tree and shrub selection

2.1. Selection process

2.1.1. Careful consideration has been made to the site-specific constraints and growing environment particular to the site. I have used the British Standards publication **BS 8545:2014** to guide the tree and shrub selection for the site. Consideration has been made for each species selected bearing in mind the following factors:

- The ultimate dimension of the tree/s or shrub/s.
- The growth rate of each species.
- The potential longevity of each species dependent on its perceived growing environment.
- Foliage, floral, fruit and seed characteristics of each tree or shrub.
- Resistance or susceptibility to pests and diseases and inherent structural weakness of each species selected.
- Other characteristics including thorns, honeydew, seasonal nuisance, allergies and branch drop.
- The rooting characteristics of each species selected.
- Tolerance to pruning, air pollution and variable soil conditions.

2.2. Tree selection

2.2.1. I have selected the following trees for planting at the site. They may be planted in any order and quantity as decided by yourself and agreed by the Local Planning Authority.

1. Korean Fir (*Abies koreana* 'Horstmann's Silberlocke') or Silver Korean Fir (*Abies koreana* 'Horstmann's Silberlocke')
2. Fraser Fir (*Abies fraseri*)
3. Noble Fir (*Abies procera*)

2.2.2. All of the trees specified above are available from well-known UK tree nurseries. The trees should be purchased as **standard** or **heavy-standard** sized in order to achieve the greatest chance of successful establishment.

2.2.3. A **standard** tree should conform to the following dimensions:

- Stem circumference of 8-10cm when measured at 1m above ground level.
- Have an overall height of 250-300cm
- Have a clear stem of 175-200cm before its crown.

2.2.4. A **Heavy-standard** tree should conform to the following dimensions:

- Stem circumference of 12-14cm when measured at 1m above ground level.
- Have a minimum overall height of 350cm
- Have a clear stem of 175-200cm before its crown.

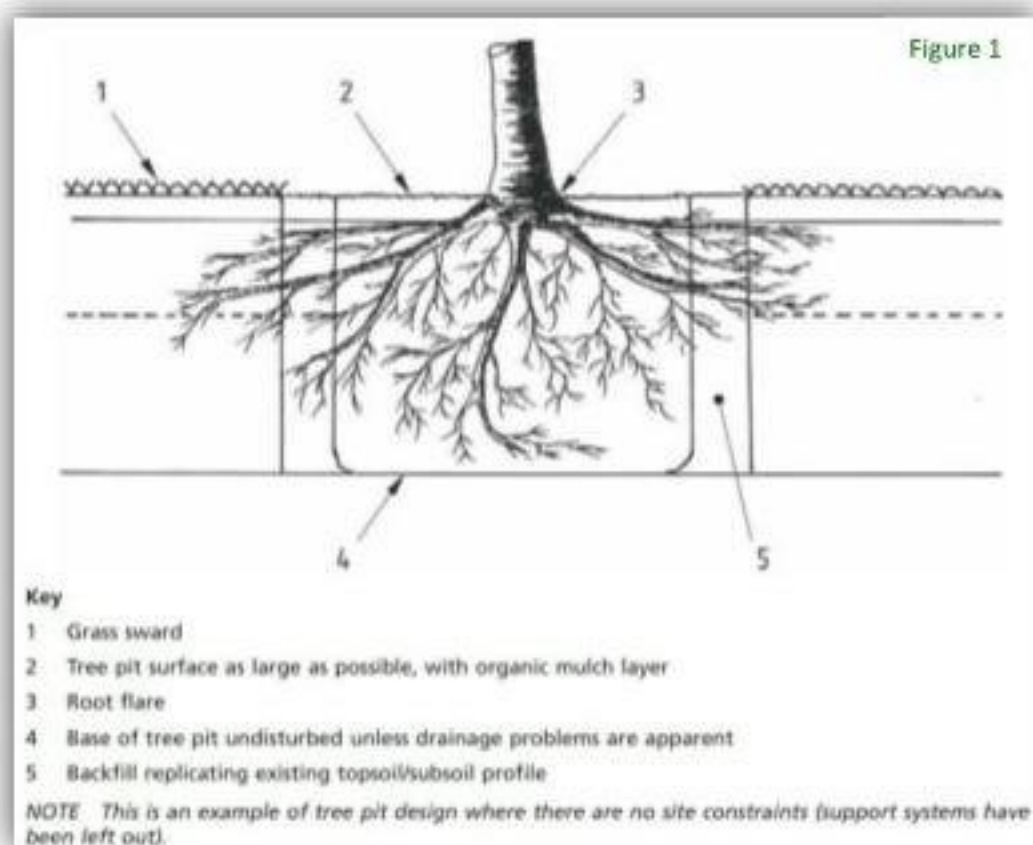
2.2.5. All of the trees should be carefully inspected on receipt for signs of defects or damage which may have occurred during loading and transportation. Any significant defects should be identified to the delivery personal and trees returned to supplier if required.



3. Tree planting design and methodology

3.1. Tree pit design and excavation

- 3.1.1. There is no definitive or singular tree pit specification and most pits have to be tailored to the site environment.
- 3.1.2. A suitable location for the chosen tree should be carefully selected. This location should be orientated a minimum of 15m away from either the main house or any other significant above ground built structure present at the site.
- 3.1.3. A square area measuring approximately twice the size of the tree's root ball should be marked out using biodegradable marker paint or a string line. The turf layer should then be cut to the same dimensions as the demarked square area. The cut turf should then be carefully lifted and removed from the exposed soil below.
- 3.1.4. Excavation of the tree pit should be conducted by hand without the use of any machinery. Any excavated soil should be placed to one side preferably on a section of ply-board¹.
- 3.1.5. The tree pit shall be excavated to a depth which is equal to the height of the tree's root flare. Whilst carrying out the excavation it is important to maintain the square profile of the pit. This will promote the proliferation of roots into the surrounding soil horizons and minimise the chance of root circling. Care must also be taken not to disturb the soil at the bottom of the tree pit.
- 3.1.6. The figure above (figure 1) illustrates the depth at which the trees should be planted. It is important to respect the root flare in regards to the soil fill. Trees which are planted too deep risk potential rotting of their stem bases.

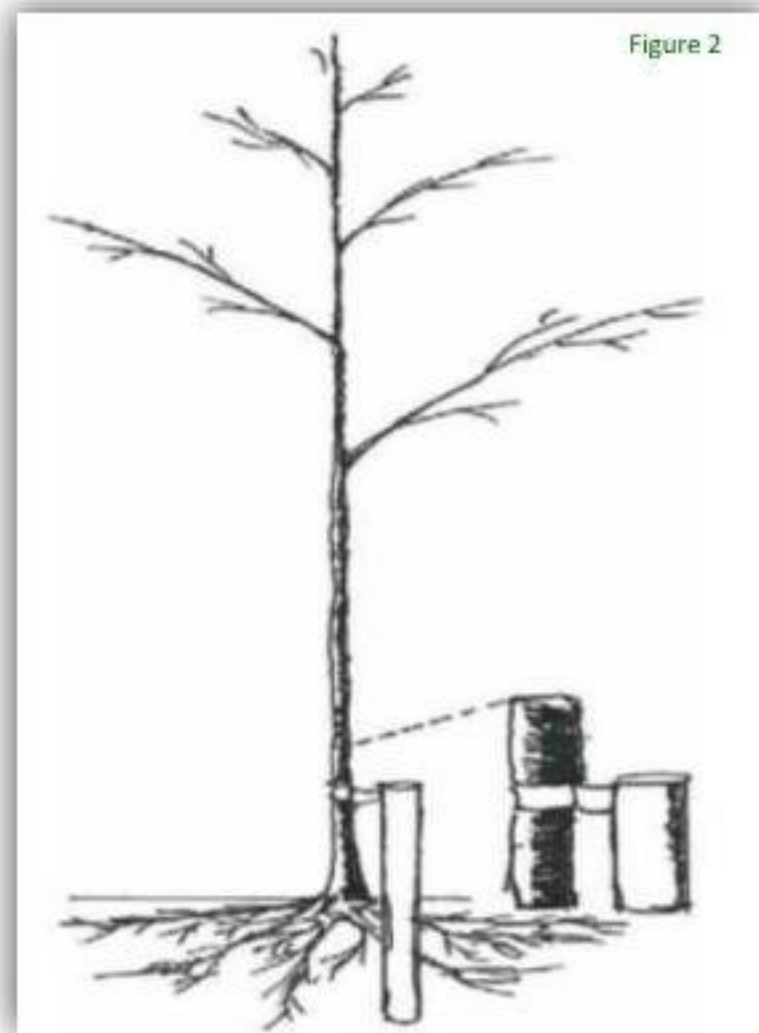


¹ To make clearing up afterwards easier.



3.2. Tree planting

- 3.2.1. All packaging including root wrappings and pots shall be removed from the tree/s prior to their placement in the prepared tree pit/s.
- 3.2.2. Container grown trees shall be placed directly into the tree pits. Additional soil may be back filled prior to planting to ensure that the final height of the tree respects the surrounding soil height.
- 3.2.3. Bare root trees shall be placed on top of a mound of soil formed from some of the excavated soil. This mound will ensure the correct settlement of backfilled soil is maintained.
- 3.2.4. Prior to backfilling, a single or double stake tree stake will be driven into the bottom of the tree pit adjacent to the stem of the tree but outside of the tree root ball. All stakes shall be driven into the soil using a post rammer until they are firm and stable.

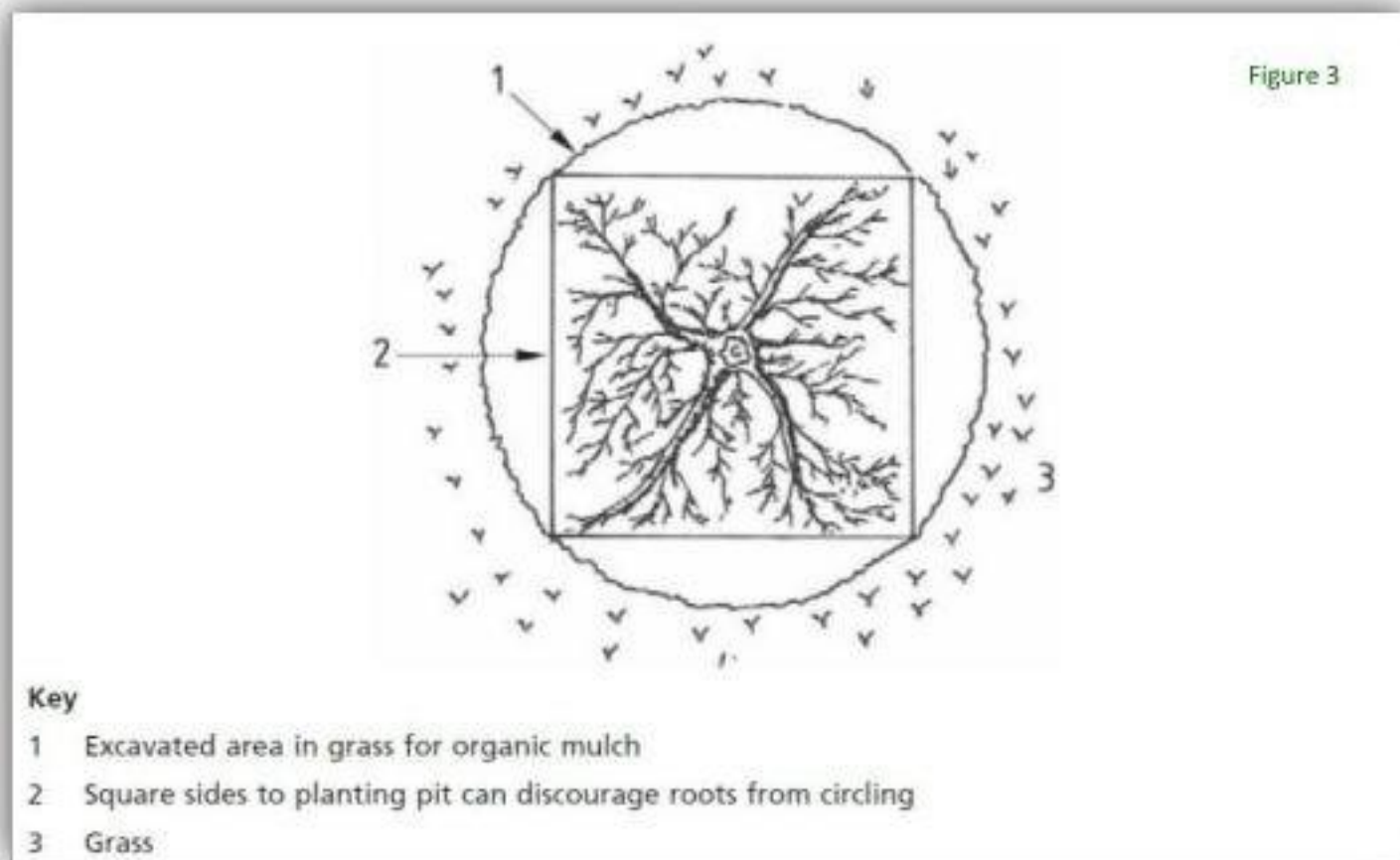


- 3.2.5. The image above (figure 2) provides a visual representation of the tree stake in situ once driven into the ground. The tree shall be affixed to the stake via a flexible tree tie and soft spacer block. This should be attached low down the trees stem where it can provide support and provide an appropriate amount of movement in the tree which will encourage the growth of lateral roots and stem taper. The image provided below (Figure 1) provides a basic visual representation of the method of tree support discussed.
- 3.2.6. Once the tree has been attached to the support system the tree pit can be backfilled using the excavated soil. The backfilled soil should be replaced in the same way it has been excavated. This will ensure that the backfilled soil matches the surrounding soil horizons.



3.3. Mulching

- 3.3.1. In order to improve the rooting environment of the tree during early establishment the surface of its tree pit and the area below its immediate canopy should be covered with a 100mm thick layer of well composted organic woodchip mulch.
- 3.3.2. The grass layer directly below the planted tree should be removed by hand as far as the canopy edge of the tree. The image below (figure 3) provides a visual representation of the area to be mulched.



- 3.3.3. The woodchip mulch layer will help to suppress weed growth below the tree, slow release nitrogen and other nutrients into the rooting zone of the tree and increase soil biota and beneficial mycorrhizae.



4. Post-planting aftercare program

Trees are a much-underrated asset in our surrounding environment, trees offer many benefits which include.

Many factors can have a detrimental effect on newly planted or establishing trees. Figures indicate that mortality rates of 30-50% are commonplace in the UK. One form of reducing this statistic is to conduct carefully organised and clearly defined aftercare programs. Such programs aim to maintain a favourable growing environment by improving or maintaining the tree's growing conditions.

Weekly watering

Watering is one of the most important and often neglected aspects of aftercare. Watering should take place weekly depending upon weather conditions and soil draining characteristics. A detailed assessment of which shall be made at the time of planting. Water requirements will also be dependent upon the species and size of the tree which is being cared for.

Formative pruning

This should be carried out in accordance with **BS 8545** & **BS 3998** as and when it is required. This should not be carried out in the first year of a trees establishment. Formative pruning aims to ensure undesirable traits such as co-dominant stems and crossing branches are avoided, and that an overall balanced and species characteristic form is obtained.

Routine assessment & maintenance

Monitoring of the tree/trees shall take place during site visits to carry out the aforementioned tasks. Careful consideration will be given to the trees foliar appearance, leaf density and incremental growth. Field tests may be carried out using a SPAD (chlorophyll meter) meter to assess leaf chlorophyll content, although this may not always be practicable. Tree support systems will be checked and adjusted accordingly, damaged or unfit items will be removed or replaced as appropriate. All supporting equipment and accessories will be removed once the tree is fully established (usually after two growing seasons). Trees will be inspected for pests, diseases and damage caused by humans or mammals. Damage or infestations will be dealt with as soon as practicable. Soil deficiencies characterised by leaf scorching, pale foliage or chlorosis will be rectified with soil additives after careful soil analysis.



4.1. Aftercare: Year 1

Weekly aftercare tasks

- **Weekly watering of tree pit, planters and shrub beds to field saturation level**
(This is to be carried out weather permitting. Watering may be conducted from soil level or through underground tree pit irrigation systems)
- **Weeding of tree pit, planters and shrub beds.**
(Removal of competitive species and adventitious colonising plants)
- **Checking and adjustment of tree support systems**
(Tree support system checked for signs of damage, wear, instability and stretch, adjustment or remedial action will be made accordingly)
- **Topping up of organic mulch layer**
(An organic mulch layer to be maintained at a depth of 100mm)
- **Routine assessment**
(Tree will be assessed for health and development and information used to inform maintenance requirements)

4.2. Aftercare: Year 2

Weekly aftercare tasks

- **Weekly watering of tree pit, planters and shrub beds to field saturation level**
(This is to be carried out weather permitting. Watering may be conducted from soil level or through underground tree pit irrigation systems)
- **Weeding of tree pit, planters and shrub beds.**
(Removal of competitive species and adventitious colonising plants)
- **Checking and adjustment of tree support system**
(Tree support system checked for signs of damage, wear, instability and stretch, adjustment or remedial action will be made accordingly)
- **Formative pruning**
(To be carried out if appropriate according to BS3998:2010 "Tree work – Recommendations". The removal of undesirable growth habits and the promotion of a tree which in maturity will be free from major physical weaknesses)
- **Topping up of organic mulch layer**
(An organic mulch layer to be maintained at a depth of 100mm)
- **Routine assessment**
(Tree will be assessed for health and development and information used to inform maintenance requirements)



4.3. Aftercare: Year 3

Weekly aftercare tasks

- **Weekly watering of tree pit, planters and shrub beds to field saturation level**
(This is to be carried out weather permitting. Watering may be conducted from soil level or through underground tree pit irrigation systems)
- **Weeding of tree pit, planters and shrub beds.**
(Removal of competitive species and adventitious colonising plants)
- **Formative pruning**
(To be carried out if appropriate according to BS3998:2010 "Tree work – Recommendations". The removal of undesirable growth habits and the promotion of a tree which in maturity will be free from major physical weaknesses)
- **Topping up of organic mulch layer**
(An organic mulch layer to be maintained at a depth of 100mm)
- **Removal of support system**
(Tree supports including stakes, ties or underground supports (if appropriate) where they are likely to hinder future development. An assessment will be made as whether the tree is established with its root ball sufficiently anchored before removal of support)
- **Routine assessment**
(Tree will be assessed for health and development and information used to inform maintenance requirements)

4.4. Independence in the landscape

- The aim of a carefully prepared aftercare scheme is a well-established, healthy and independent tree with good natural form characteristic of its species.



5. Qualifications

This report was constructed and written by



Oliver Lower ^{Dip Arb L4} Senior Arboricultural Consultant

I have 16yrs experience in the Arboricultural industry and have attained the following accreditations.

National Diploma Arboriculture Lv3

Level 4 Diploma Arboriculture (ABC)

Professional Tree Inspection (LANTRA)



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